VadaTech MicroTCA ScorpionWare®

System Manager Interface Reference Manual

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Version 2.1

vadatech inc.
THE POWER OF VISION

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Revision History

Doc Rev	Description of Change	Revision Date
1.0.0	Preliminary document for VadaTech System Manager	09/20/2009
1.1.0	Scorpion Ware version 1.1	02/30/2010
2.1.0	Scorpion Ware version 2.1	11/24/2010

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1 Overview

ScorpionWare® is a VadaTech System Management Software Application used to Control, Manage and Monitor AdvancedTCA and MicroTCA platforms. Telecom, Military and Aerospace projects are increasingly using AdvancedTCA and MicroTCA platforms. Integration and testing of these complex platforms are one of the stumbling blocks to integrators and add delays to final deployment. ScorpionWare® provides an easy to use Graphical User Interface with several features for monitoring, trouble shooting and easy integration of these platforms.

ScorpionWare® is a cross-platform application. The application interfaces with any ATCA and UTCA Platform Management Interface Compliant Management Software using RMCP+ to establish a secure connection.

ScorpionWare® provides an interface to the VadaTech MicroTCA Shelf Manager or the Carrier Manager. The interface is based on IPMI 2.0, AdvancedTCA™ PICMG 3.0, and MicroTCA 1.0 specifications and can be used to access information about the current state of the Shelf or the Carrier, obtain information such as the FRU population, or monitor alarms, power management, current sensor values, and the overall health of the Shelf. The interface can also be used to update Shelf and Carrier configurable parameters.

The information provided in this document is the interface to MicorTCA systems using the ScorpionWare® GUI and is a supplement to the information found in the MicroTCA Base Specification.

1.1 Applicable VadaTech Products

UTC001, UTC002, UTC003, VT85x, VT86x, VT88x

1.2 Document References

- Intelligent Platform Management (IPMI) Interface Specification v2.0
- PICMG® 3.0 Revision 3.0 AdvancedTCA® Base Specification
- PICMG® AMC.0 R2.0 Advanced Mezzanine Card Base Specification
- PICMG® Specification MTCA.0 R1.0 (MicroTCA)
- VadaTech MCH Software Management Manual
- UTC001 Getting Started Guide

1.3 Acronyms Used in this Document

Acronym	Description
IPMI	Intelligent Platform Management Interface. A specification and mechanism for providing inventory management, monitoring, logging, and control for elements of a computer system as defined in intelligent Platform Management Interface Specification.
MicroTCA	MicroTelecommunication Computing Architecture
FRU Device ID	A value that uniquely identifies a FRU relative to an IPM Controller. In MicroTCA the most frequent use of FRU Device ID is to uniquely identify a FRU within a MicroTCA Carrier relative to the Carrier Manager.
FRU information	Data that describes a FRU with an emphasis on data that characterizes the FRU. Format for this data is described in IPMI Platform management FRU information Storage Definition and extended herein.
Hot Swap	To remove a component (e.g.. an AdvancedMC Module) from a system (e.g., an MicroTCA Shelf) and plug in a new one while the power is still on and the system is still operating
LED	Light Emitting Diode
Link	1. One or more Ports aggregated under a common protocol. Links are groups of Ports that are enabled and disabled by Electronic Keying operations. 2. A group of Lanes which operate together to connect two devices. The number of Lanes used is negotiated.
Managed FRU	Either an Intelligent FRU or a FRU that is represented by an Intelligent FRU via a FRU Device ID
Module	Refers to any MicroTCA Module types, including CU, PM, MCH, OEM Module, or AdvancedMC
Payload	The primary function that a FRU provides. This includes all the hardware on the FRU except that associated with management. It may also include the firmware, operating system and application software running on the Payload hardware.
Shelf	An electronic assembly consisting of the Subrack, Backplane, Modules, cooling Devices, power subsystems, etc. Also historically known as a chassis. Shelves are usually mounted in Frames.
Shelf Manager	The entity responsible for managing the cooling in a MicroTCA Shelf. It also routes messages between the System Manager Interface and the Shelf-Carrier Manager Interface, provides interfaces to system repositories, and responds to event messages.
Cluster	The entity responsible for managing and grouping one or more MicroTCA Shelves.

System Manger	A level of management functionality above the Shelf Manager charged with the management of an entire system, whatever that may mean in a specific Implementation
System Manager Interface	The communication interface between Shelf Manager and System Manager
PEF	Platform Event Filter(ing)
SDR	Sensor Data Record
SDR Repository	Sensor Data Record Repository
SEL	System Event Log
MicroTCA Carrier Hub (MCH)	An assembly providing MicroTCA Carrier functions needed to support up to twelve Hub (MCH) AdvancedMCs including MCMC, optional ShMC, optional Fabric switch, and clock.
MicroTCA Carrier Management Controller (MCMC)	Management controller on the MCH. The required management controller that interfaces to AdvancedMC MMCs via IPMB-L and to CU, PM, and OEM Module EMMCs via IPMB-0.
MMC	The required management controller on an AdvancedMC Module the MicroTCA Carrier Manager on the MCH via IPMB-L
EMMC	Management Controller on PMs, OEM Modules, and CUs.

Table 1: Acronyms

2 Installation

The ScorpionWare® System Manager Application is available for Linux and Windows Operating Systems for 64-bit and 32-bit architectures.

2.1 Linux

The ScorpionWare® Linux package requires Fedora 12 or later. Use the appropriate installer.

If QT is not installed please install the qt-x11 package

```
#yum install qt-x11-4.6.3
```

To install the x86_64 or i686 RPM package

```
#rpm  --install --force sysmanager-x.x.x.x-fcx_MMDDYY.x86_64.rpm
#rpm  --install --force sysmanager-x.x.x.x-fcx_MMDDYY.i686.rpm
```

If an earlier version of ScorpionWare® is already installed, then use the upgrade option.

```
#rpm  --upgrade --force sysmanager-x.x.x.x-fcx_MMDDYY.x86_64.rpm
#rpm  --upgrade --force sysmanager-x.x.x.x-fcx_MMDDYY.i686.rpm
```

2.2 Windows

The ScorpionWare® Windows packages are available for 64-bit and 32-bit architectures running Windows XP or Vista.

2.3 UTC001 Interface

The various VadaTech MicroTCA Shelf Managers support the following front panel interfaces:

- Two Ethernet connections via an RJ-45 connector
- An RS-232 serial management port interface via an RJ-45 connector

Any of these interfaces can be used to log in to the Shelf Manager or the Carrier Manager. To configure the system IP address the first time, log in using the serial port console.

2.4 Configuring the Shelf Manager IP Connections

On the MCH side the IP address must be configured. If the MCH network is not configured properly use the UTC001 serial port console and log in.

The default administrative user name and password are '**root**' and '**root**' respectively.

Please refer to the VadaTech UTC001 Getting Started Guide for more information on how to configure the UTC001 Shelf or Carrier Manager out of band interfaces.

If the MicroTCA Shelf Manager IP address is configured properly, the user can communicate with the Shelf Manager over the network. The ScorpionWare® can run on a Remote Management Console and connect to the Shelf Manager through the RMCP interface to send IPMI messages. The Shelf Manager is configured with a system manager default user account with administrative privileges.

There are two Shelf Manager IP Connection addresses as defined by the MicroTCA Specification. The VadaTech default setting for the Shelf Manager IP Connection addresses are "192.168.1.230" and "192.168.1.231". This can be changed during the initial configuration via the serial console.

View the available IP connections to the MicroTCA Shelf Manager:

```
# get_ip_connection
      Shelf Manager IP Address 0          : 192.168.1.230
      Shelf Manager Gateway Address 0     : 192.168.1.1
      Shelf Manager Netmask 0             : 255.255.255.0
      Shelf Manager IP Address 1          : 192.168.1.231
      Shelf Manager Gateway Address 1     : 192.168.1.1
      Shelf Manager Netmask 1             : 255.255.255.0
```

To change the IP connections to the Shelf Manager, use the **set_ip_connection** CLI command. The changes take effect on the next power cycle.

Please refer to the VadaTech MicroTCA Shelf Manager Command Line Interface Reference Manual for more information on how to configure the UTC001 Shelf or Carrier Manager IP Connections.

2.5 Server Connection

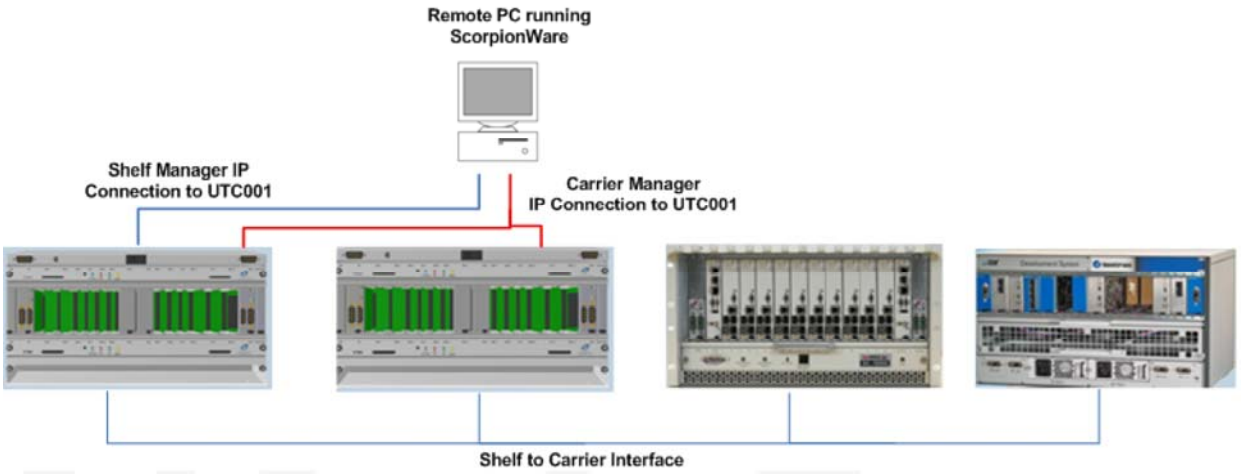


Figure 1: System Manager Connection

After the Shelf and the Carrier Manager IP Connections are configured properly on the VadaTech UTC001 MCH, the Remote PC running ScorpionWare® and the MCH must be on the same network.

From the Remote PC, first ping the Shelf or Carrier Manager IP Connection address to verify communication between the MCH and the remote PC has been established. If there is a problem with the communication, then check your network connection.

With the network connection verified, ScorpionWare® should be able to open a session and get connected to the Shelf. The following shows the list of default IP addresses assigned on a UTC001 that is running as a Shelf Manager.

```
[root@vtipmi root]# ifconfig

eth0        Link encap:Ethernet HWaddr 00:13:3A:00:24:88
            inet addr:192.168.1.252 Bcast:192.168.1.255 Mask:255.255.255.0
            UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
            RX packets:547940 errors:0 dropped:0 overruns:0 frame:0
            TX packets:871209 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:42654453 (40.6 MiB) TX bytes:63517831 (60.5 MiB)
            Base address:0xb000

eth0:1      Link encap:Ethernet HWaddr 00:13:3A:00:24:88
            inet addr:192.168.16.1 Bcast:192.168.16.255 Mask:255.255.255.0
            UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
            Base address:0xb000
            eth0:8 Link encap:Ethernet HWaddr 00:13:3A:00:24:88
            inet addr:192.168.16.17 Bcast:192.168.16.255
            Mask:255.255.255.0
            UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
            Base address:0xb000

eth0:9      Link encap:Ethernet HWaddr 00:13:3A:00:24:88
            inet addr:192.168.1.230 Bcast:192.168.1.255 Mask:255.255.255.0
            UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
            Base address:0xb000
            eth0:10 Link encap:Ethernet HWaddr 00:13:3A:00:24:88
            inet addr:192.168.1.231 Bcast:192.168.1.255 Mask:255.255.255.0
            UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
            Base address:0xb000

eth1        Link encap:Ethernet HWaddr 00:13:3A:00:24:89
            inet addr:192.168.40.250 Bcast:192.168.40.255
            Mask:255.255.255.0
            UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
            RX packets:0 errors:0 dropped:0 overruns:0 frame:0
            TX packets:2 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:0 (0.0 B) TX bytes:104 (104.0 B)

lo          Link encap:Local Loopback
            inet addr:127.0.0.1 Mask:255.0.0.0
            UP LOOPBACK RUNNING MTU:16436 Metric:1
            RX packets:15788775 errors:0 dropped:0 overruns:0 frame:0
            TX packets:15788775 errors:0 dropped:0 overruns:0 carrier:0
```

Figure 2: Shelf Manager Default IP Address assignments

The following illustrates the use of each of the above listed IP addresses.

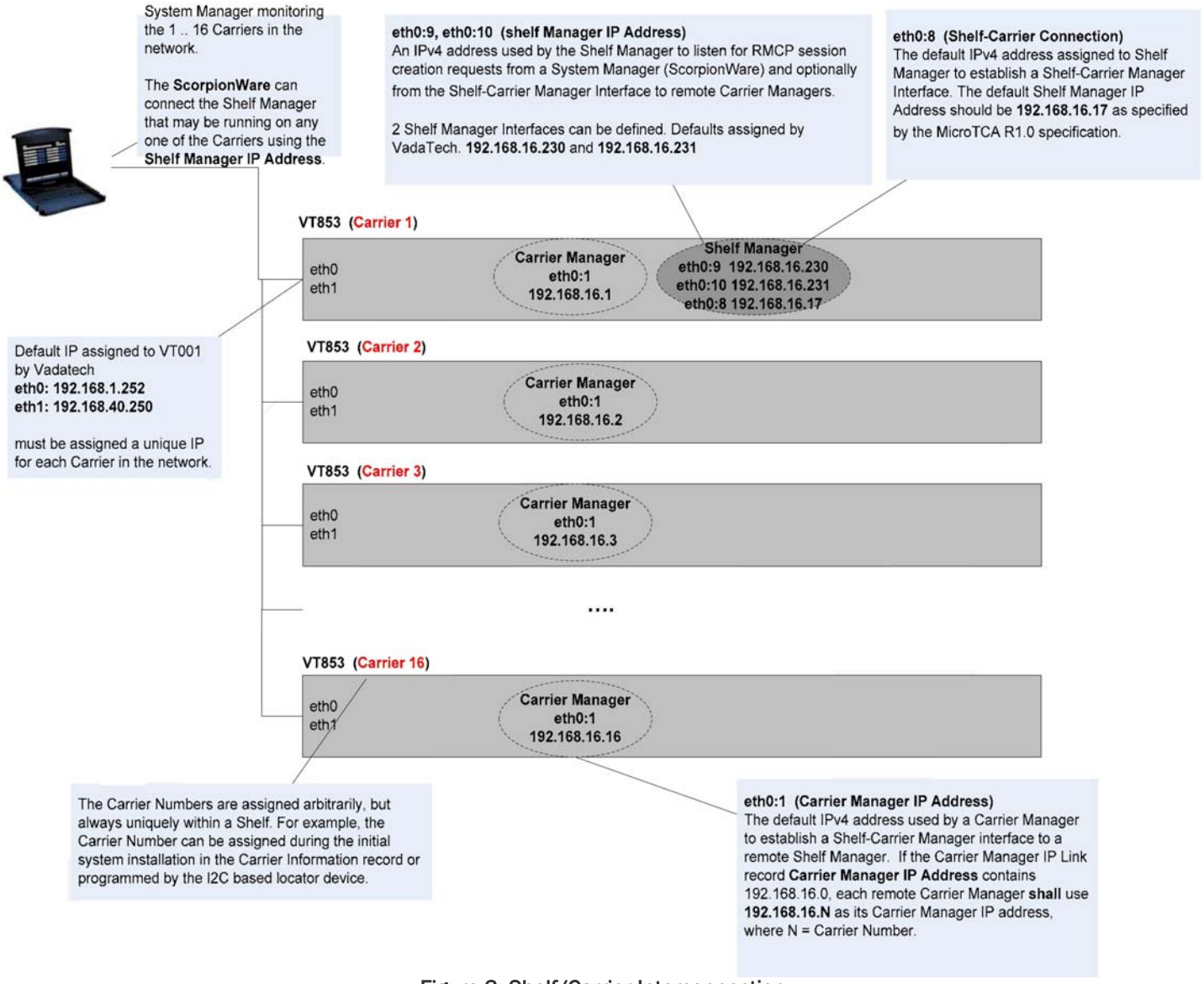


Figure 3: Shelf/Carrier Interconnection

2.6 Starting the Application

2.6.1 Linux

After completing the installation on the remote PC running Linux, ScorpionWare® can be started by issuing the following from the Linux prompt:

```
# sysmanager
```

2.6.2 Windows

After installing the ScorpionWare® Windows package the System Manager Application short cuts are available in the Windows Start Menu and Desktop.

2.7 Session

When the ScorpionWare® System Management application is started the Session Configuration screen allows the user to configure a session with UTC001 Cluster Manager, Shelf Manager or the Carrier Manager.

There are three types of connections on the UTC001 depending on its configuration:

- *Carrier Manager* using the Carrier Manager IP Address
- *Shelf Manager* using the Shelf Manger IP Address
- *Cluster* using one or more Shelf Manager IP Addresses

2.7.1 Configuration

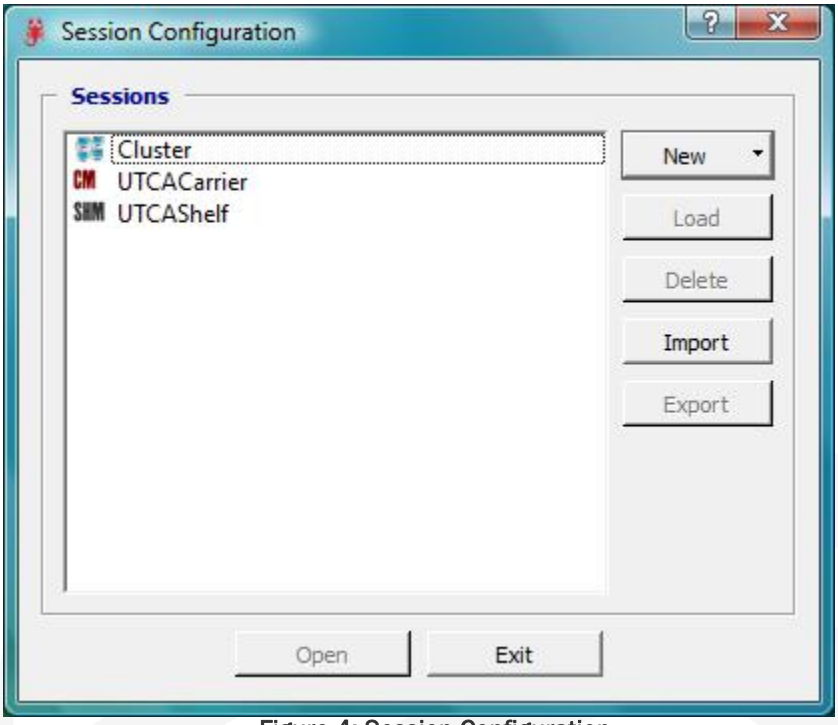


Figure 4: Session Configuration

The **Session Configuration** dialog allows the user to create, load and modify session configuration with the UTC001 Shelf, Carrier or a Cluster of Shelves. To create a connection user must choose from one of the three server types.

There are three types of Server Interfaces, namely Carrier, Shelf and Cluster. The destination Server Interface depends on the mode the UTC001 is currently configured.

The following dialog is used to configure or update a Carrier or Shelf Connection.

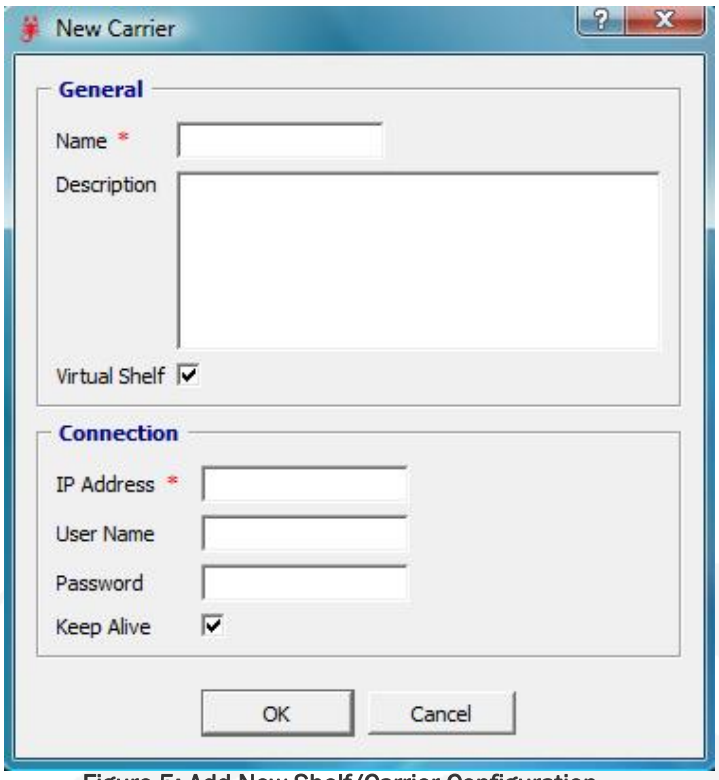


Figure 5: Add New Shelf/Carrier Configuration

** - Required fields*

The name and description fields can be used to identify an end system. The *Virtual Shelf* option is default enabled. When connected with the end system, the virtual view of the Shelf is displayed to the user.

The connection parameter is used to specify the end system IP Address, log in User and Password. On a newly configured UTC001 the "null" user account is by default available. Therefore User and Password is optional here.

The following dialog is used to configure or update a Cluster of Shelf's.

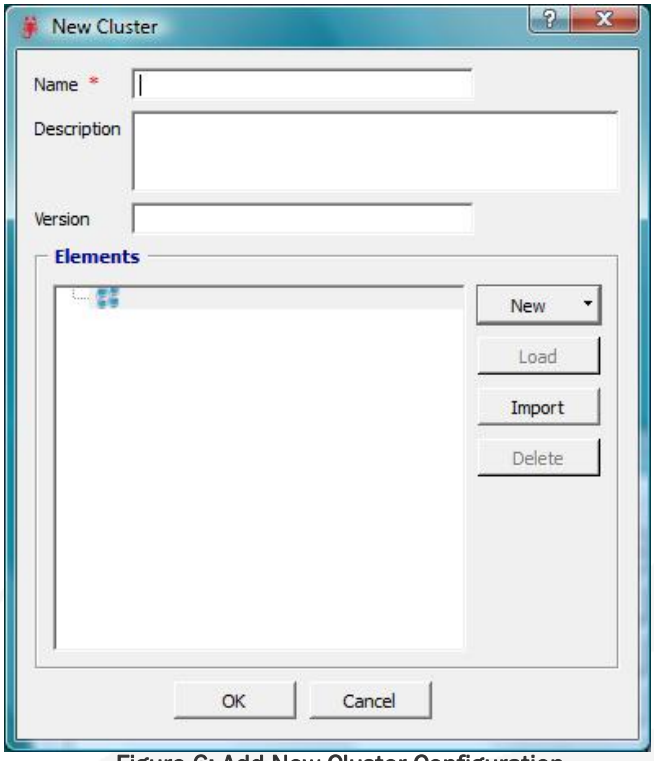


Figure 6: Add New Cluster Configuration

** - Required fields*

2.7.2 Keep Alive

The **Keep Alive** option allows the user to remain connected with the server when there is no user activity. When enabled during login, the System Manager keeps the session alive by sending a heart beat message to the server periodically. If the Keep Alive option is not selected during log in the System Manager will close the session after 60 seconds of inactivity. The user may enable or disable Keep Alive at any time when the System Manager is running.

2.7.3 Virtual Shelf/Carrier

The **Virtual Shelf/Carrier** option allows the user to view the end system and FRUs using the System Manager. If this option is selected the System Manager will construct the Chassis and the FRUs populated and display the virtual status of the Shelf or Carrier.

Note: By default Virtual Shelf/Carrier display is supported on all VadaTech Chassis and FRUs. All other types of Vendor Chassis will require Images of the Chassis and FRUs to be loaded and configured on the System Manager.

2.7.4 Login

2.7.4.1 Shelf/Carrier Manager Login

Figure 7: Shelf/Carrier Login

When the Carrier/Shelf System Manager initiates a connection, the user will be prompted to enter the User Name and Password to the destination server.

On a newly configured UTC001 the “null” user account is by default available. Therefore a user can continue to log in using the “null” user and therefore User and Password is not required.

A user account can be configured by the Administrator after the first time log in to the UTC001.

2.7.4.2 Cluster Manager Login

When the Cluster Manager session is selected the user will be able to choose among the number of previously configured Shelves to connect.

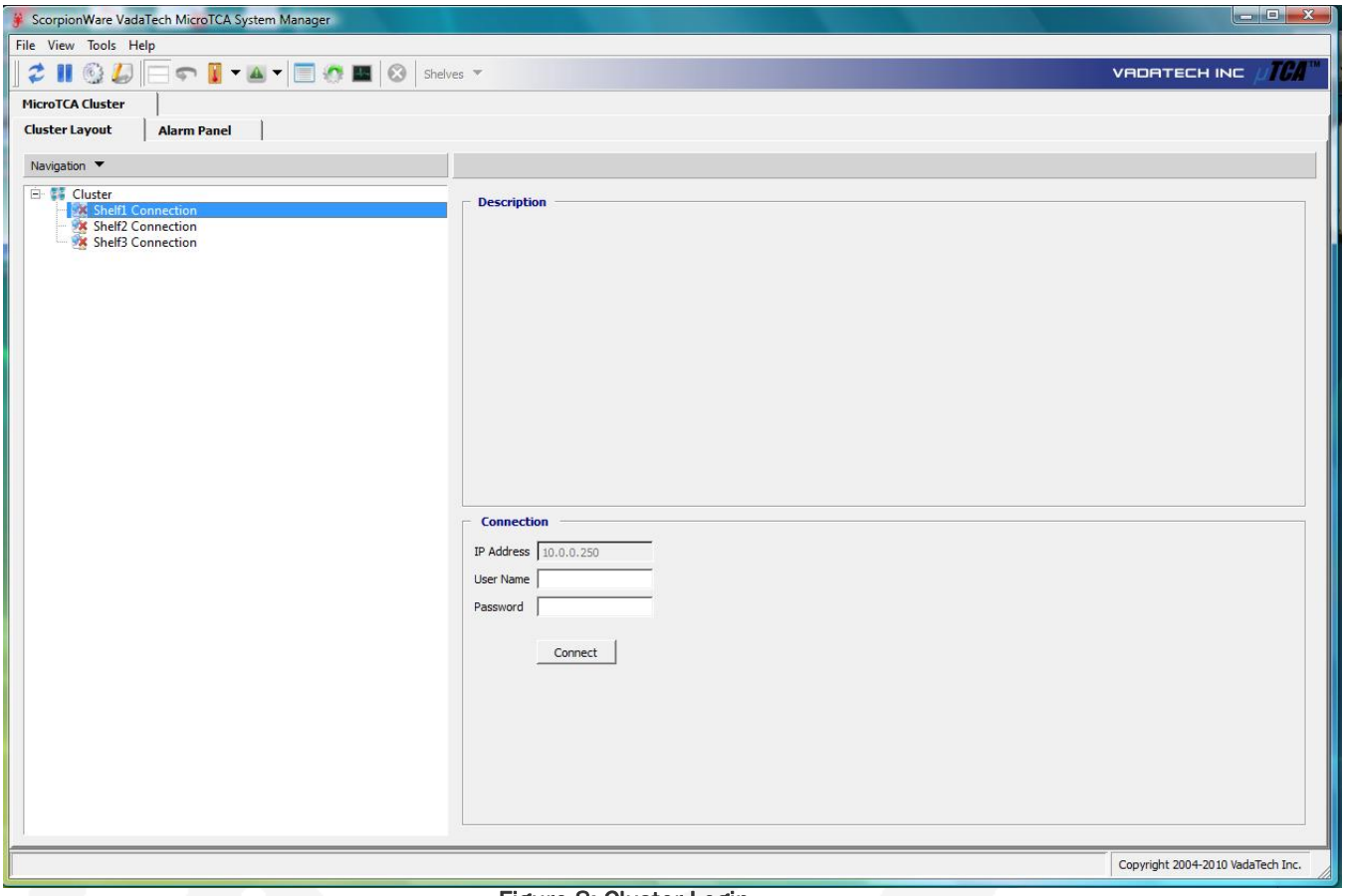


Figure 8: Cluster Login

3 System Manager Interface

3.1 Main Menu

Main Menu	Sub-menu	Hot Keys	Description
File	Close	CTRL+C	Close current open session
View	Sensor Monitor		The list of sensor monitor sub windows open
Tools	Refresh	CTRL+R	Refresh Shelf Information
	Pase Auto-Refresh	CTRL+P	Enable/Disable Auto refresh
	Setting	CTRL+S	Custom ScorpionWare® settings
	Logger	CTRL+G	View System Manager Log file
	Chassis View	CTRL+H	Enable/Disable Chassis View
	Rotate Chassis	CTRL+O	Rotate Chassis
	Trap Listener	CTRL+T	Open SNMP Trap Listener
	FRU Upgrade	CTRL+U	Open FRU Upgrade Dialog
	Sensor Monitor	CTRL+M	Open Sensor Monitor Instance
Help	About		Information about ScorpionWare®

Table 2: Main Menu Description

3.2 Toolbar Options

ICON	Description
	Refresh Shelf Information on demand
	Pause Auto Refresh
	Custom ScorpionWare® settings
	Open ScorpionWare® log file
	Chassis View enable/disable
	Chassis Rotate
	Show/Hide FRUs' Temperature Bars
	Show/Hide FRUs' Alerts
	Open SNMP Trap Listener
	Open FRU Upgrade Dialog
	Open Sensor Monitor Instance
	Open Shelf Tab

Carriers ▾	Open a Carrier tab

Table 3: Tool bar Description

3.3 Status

The System Manager Status bar (bottom left) is used to report activities and command completion status.

3.4 Connection Status

The System Manager Server connection status bar presents the Server IP address/Port number of the current open session. An indicator is provided to present the user with the status of the server connection.

Color	Description
GREEN	Shelf Manager session is active and healthy
BLINK GREEN	System Manager is sending a heart beat to the remote server to keepm session alive
RED	Shelf Manager session is Inactive
BLINK RED	System Manager lost connection with remote server and trying to reestablish connection.

Table 4: Server Connection Status

3.5 Management Resource Tabs

3.5.1 Shelf Manager

The **Shelf Tab** represents the Shelf resource at event receiver address 0x20.

3.5.1.1 Shelf Tab Overview

Selecting the Shelf Tab presents the Shelf Virtual Display, the Navigation Tree, the Resource/Entity Information and the FRU View.

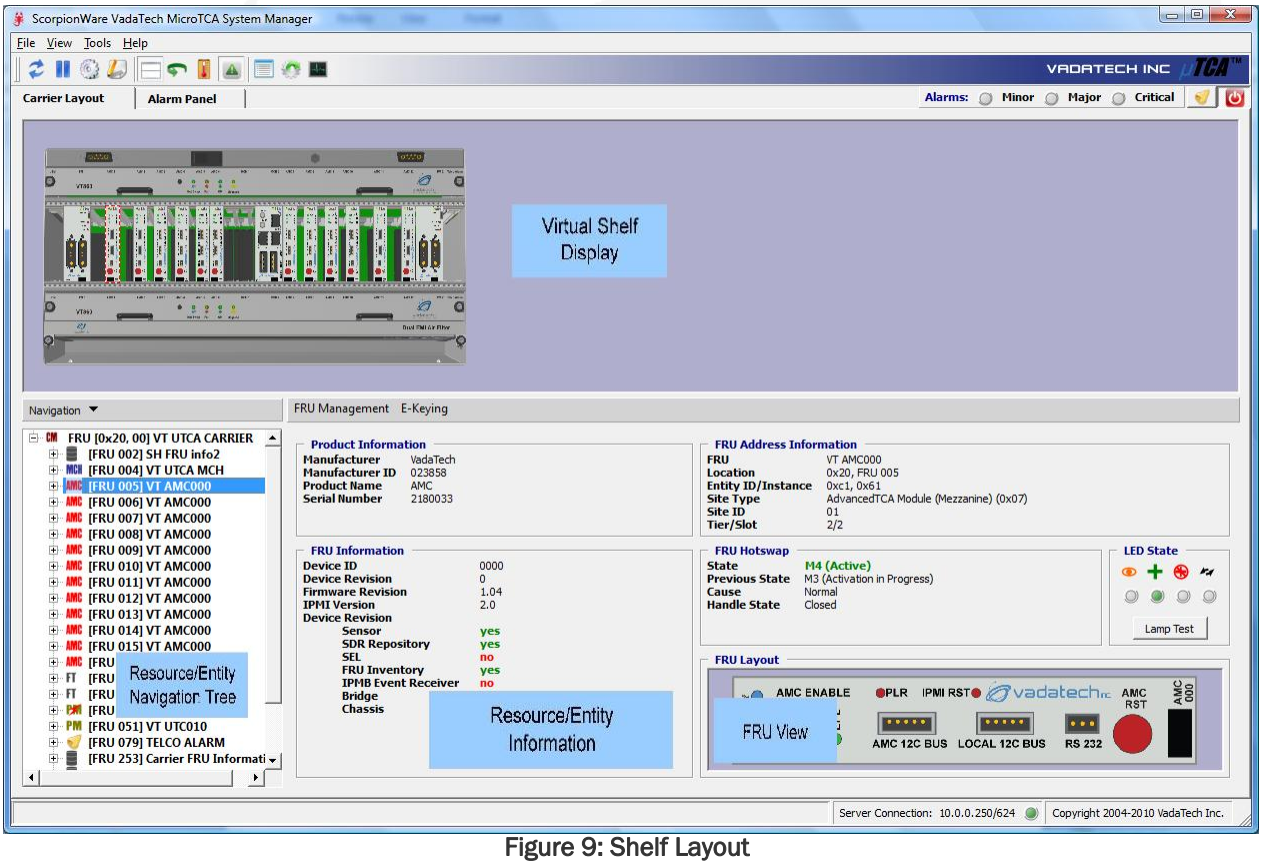


Figure 9: Shelf Layout

- **Virtual Shelf View** – A virtual representation of the Shelf connected to the various Carriers as described in the MicroTCA Shelf Information Record. The Shelf View shows all the Carriers that are active and connected to the Shelf and the location of the Shelf FRU Information.

- Navigation – A tree representing the Shelf as the root node and the Carriers managed by the ShMC. Only the Carriers currently connected to the Shelf are displayed. The resources and entities behind the Carriers are presented under the Carrier node. The navigation tree is used to traverse down the Shelf resource hierarchy.

- Resource/Entity Information – Presents the information of the selected Resource or Entity. Product, FRU Address, Hotswap, and other detail information of the Resource/Entity are displayed in this section.

- FRU View – Presents the image of the selected FRU.

If Carrier is selected the FRU View changes to Cooling Geography were the user can obtain information about temperature and cooling levels for each cooling region.

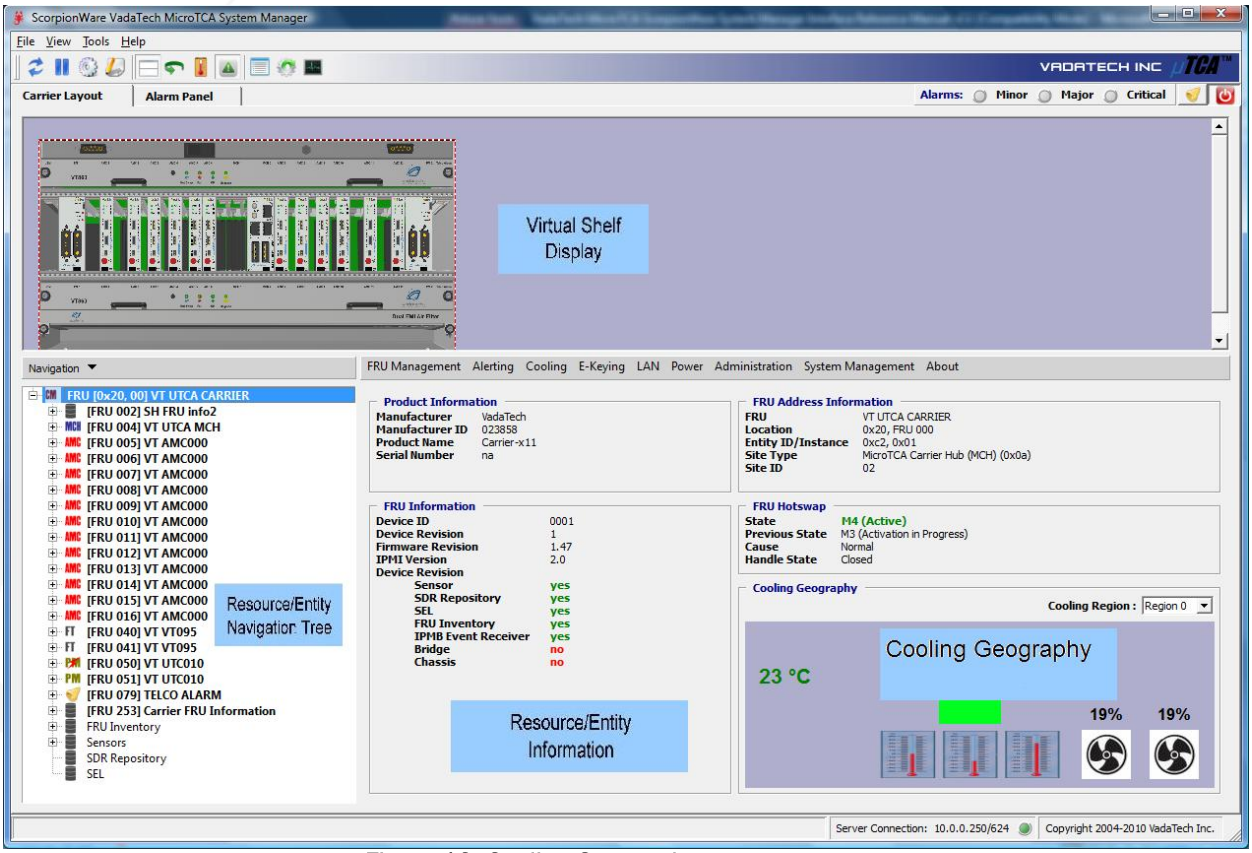


Figure 10: Cooling Geography

- Cooling Geography View – Presents the current cooling status of the Shelf with the current operating temperature and the fan level in percentage.

3.5.1.2 Shelf Alarm Panel

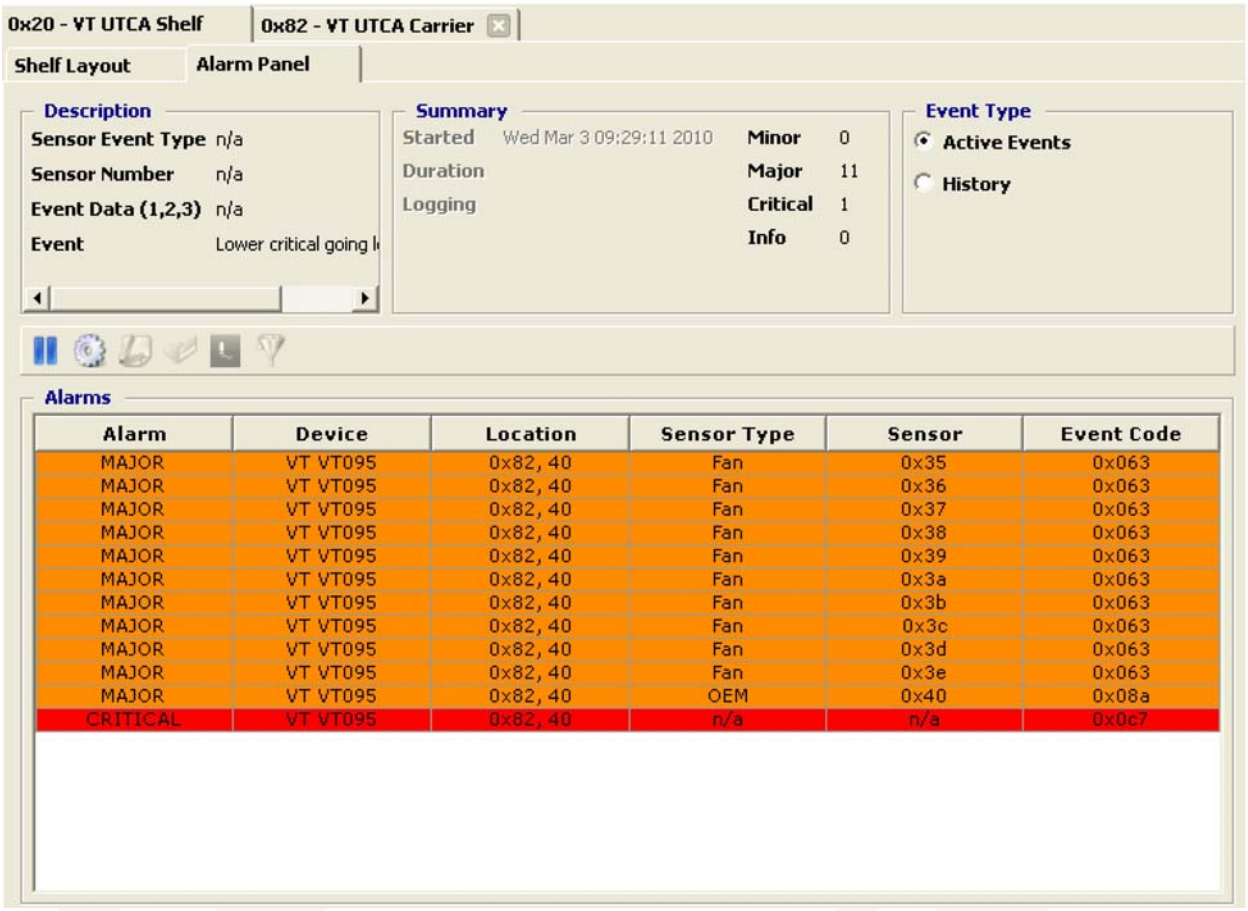


Figure 11: Shelf Alarm Panel

The Shelf Alarm Panel displays all the active alarms on the Shelf as well the option to view the history of alarms that occurred since system startup.

3.5.1.3 Cluster Alarm Panel

The Cluster Alarm Panel displays all the active alarms on the connected Shelves as well the option to view the history of alarms that occurred since system startup.

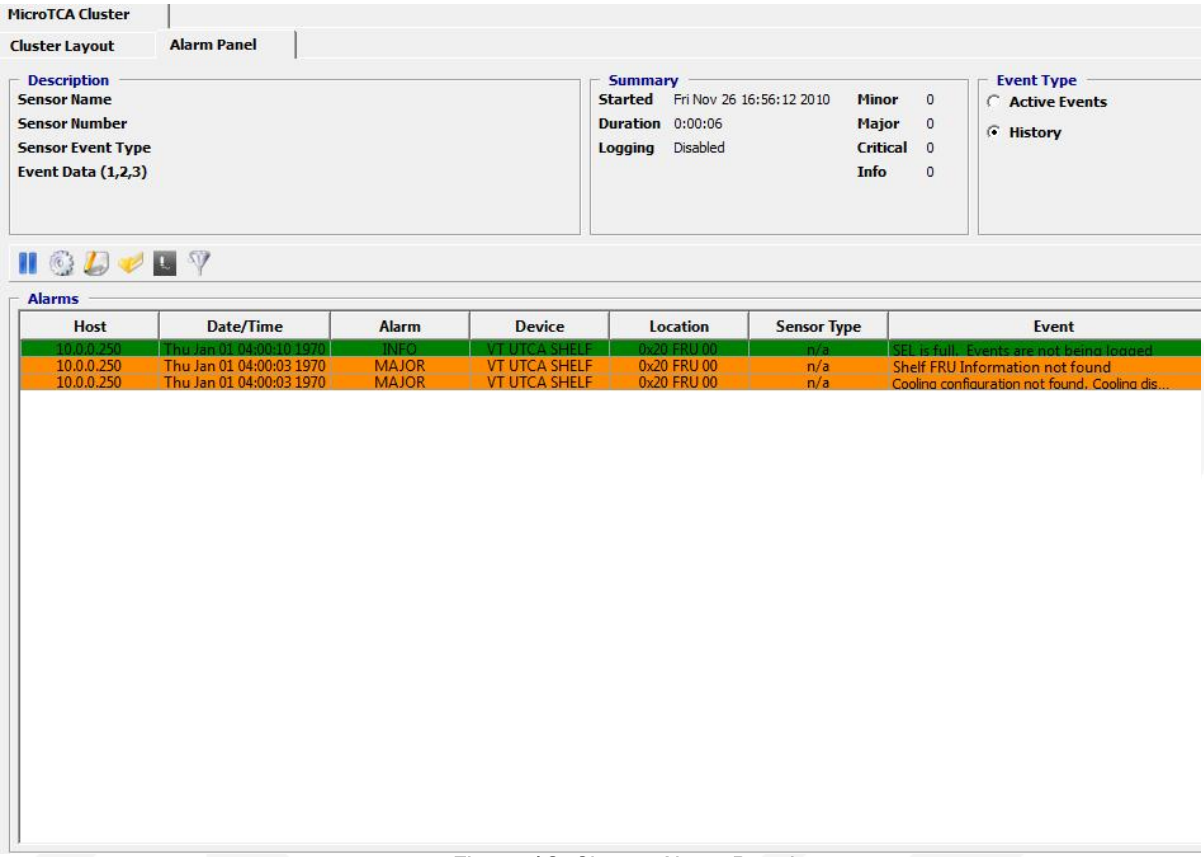


Figure 12: Cluster Alarm Panel

3.5.2 Carrier Manager

3.5.2.1 Carrier Tab Overview

The **Carrier Tab** represents a remote Carrier connected to the Shelf. Up to 16 Carriers can be connected to a Shelf Manager.

Figure 13: Carrier List

A new Carrier Tab can be added using the "Carrier" drop down list in the System Manager Tool bar option. The drop down list will contain all the Carriers currently connected to the Shelf. The user can select a Carrier by name to open its Carrier Tab. If a Carrier loses communication with the Shelf Manager, the respective Carrier entry will be grayed out and disabled.

The Carrier Tab presents the Virtual Carrier View, the Navigation, the Resource/Entity, and FRU Information.

- Virtual Carrier View – A virtual representation of the Carrier chassis and the FRUs installed in it.
- Navigation – A tree representing the Carrier as the root node and the FRUs managed by the MCMC. Only the FRUs currently installed to the Carrier are displayed. The resources and entities behind the Carriers are presented under the Carrier node. The navigation tree is used to traverse down the Carrier resource hierarchy.
- Resource/Entity Information – Presents the Information of the selected Resource or Entity.
- FRU View - Presents the image of the selected FRU.
- Cooling Geography View – Presents the current cooling status of the Shelf with the current operating temperature and the fan level in percentage.

A Carrier Tab can open and closed by the user at anytime.

3.5.2.2 Carrier Alarm Panel

The Carrier Alarm Panel displays all the active alarms on the Carrier as well the option to view the history of alarms that occurred since system startup.

3.5.2.3 Carrier Telco Alarms

The Carrier Telco Alarms shows the current state of the Minor, Major and Critical alarms. These Carrier Alarms are reported by the Carrier TELCO FRU. If the TELCO FRU is not

discovered or is not present for a Carrier, the Carrier Alarms will remain inactive and grayed out.

Figure 14: Carrier Telco Alarms

Controls:

	Telco Cut-off Disabled
	Telco Cut-off Enabled

3.6 Shelf Virtual View

The Virtual Shelf View provides a pictorial representation of the Shelf and its connections to the various OEM Carriers. Green bars represent temperature level of each FRU.

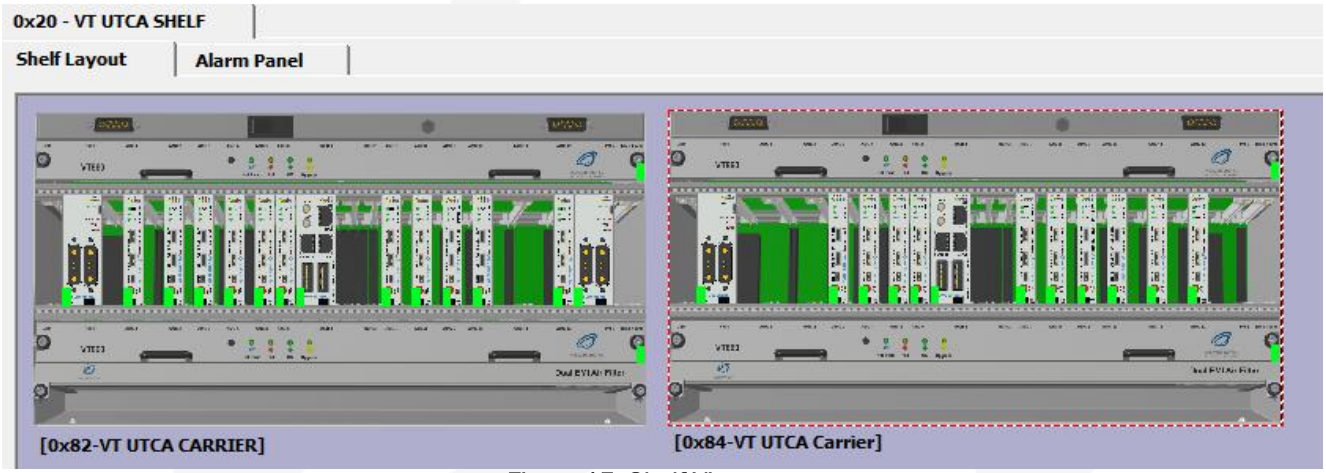


Figure 15: Shelf View

The Carriers front or back can be viewed using the  Chassis rotate option.

When the  Show Chassis Temperature option is enabled, green/orange/read bars show on the chassis FRU represent the temperature level of each FRU.

The following table lists the Carrier IDs and access addresses in the Shelf domain:

Carrier ID	Address
1	0x82
2	0x84
3	0x86
4	0x88
5	0x8a
6	0x8c
7	0x8e
8	0x90
9	0x92
10	0x94
11	0x96

12	0x98
13	0x9a
14	0x9c
15	0x9e
16	0xa0

Table 5: Carrier Addressing

3.6.1 Shelf FRU Information

The Shelf FRU Information can be located on any one of the Carriers connected to the Shelf. During startup the Shelf Manager will discover the Shelf FRU Information. Based on this data the Shelf Manager will initialize the Shelf Cooling Management, Shelf Activation, IP connections, etc.

The Carrier that contains the Shelf FRU Information is indicated by a '◙' tag under the Carrier image.

3.6.2 Carrier Active Status

When the Shelf detects a Carrier, the respective Carrier image is added to the Shelf View.
If communication is lost with a Carrier, the respective Carrier image is grayed out until the communication is re-established. If a Carrier is removed or extracted from the Shelf then the Carrier image is removed from the Shelf View.

3.6.3 Carrier Resource

The Shelf View can also be used to navigate to the selected Carrier resource. Any of the installed and active Carriers can be selected to view that Carrier's Tab.

3.7 Carrier Virtual View

The Carrier Layout provides a pictorial representation of the Carrier and the FRUs installed in the Carrier Chassis. The Carriers are identified by their Manufacturer ID and Part Number provided by the Vendor and the System Manager will load the respective Carrier image if one is available. The example shows a VadaTech VT860 Chassis Virtual front view.

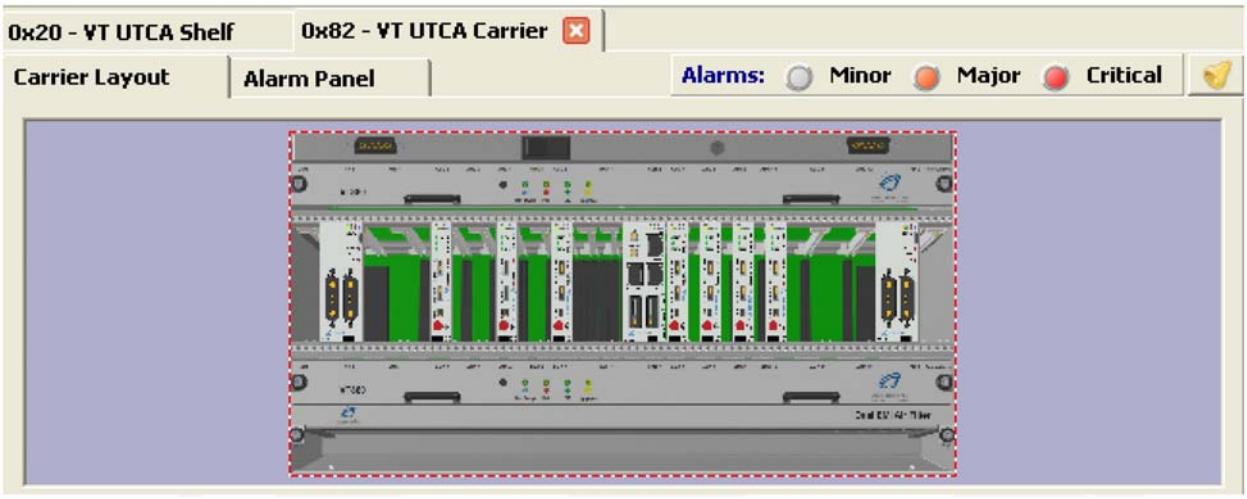


Figure 16: Carrier View

The Carriers front or back can be viewed using the Chassis rotate option.

3.7.1 FRU Active Status

When the System Manager detects a FRU installed in the Carrier, the respective FRU image is populated in the Carrier View. If communication is lost with a FRU, the respective FRU image is grayed out until the communication is re-established. If a FRU is removed or extracted from the Carrier then the FRU image is removed from the Carrier View.

3.7.2 Carrier Manager FRU

The Carrier View can also be used to navigate to the selected Carrier FRU. Any of the installed FRU can be selected to view its entities.

3.8 Resource and Entity Navigation

Resources actually represent the managed elements, called Entities, and the management instruments associated with these entities. In other words, resources are a logical representation of a piece of managed hardware and the management and capabilities methods for that hardware.

3.8.1 Tree Hierarchy

The Cluster, Shelf and Carrier navigation tree presents the all the resources and entities in a hierarchal tree with the Cluster, Shelf and Carrier as the root node and all the managed resources and entities under it.

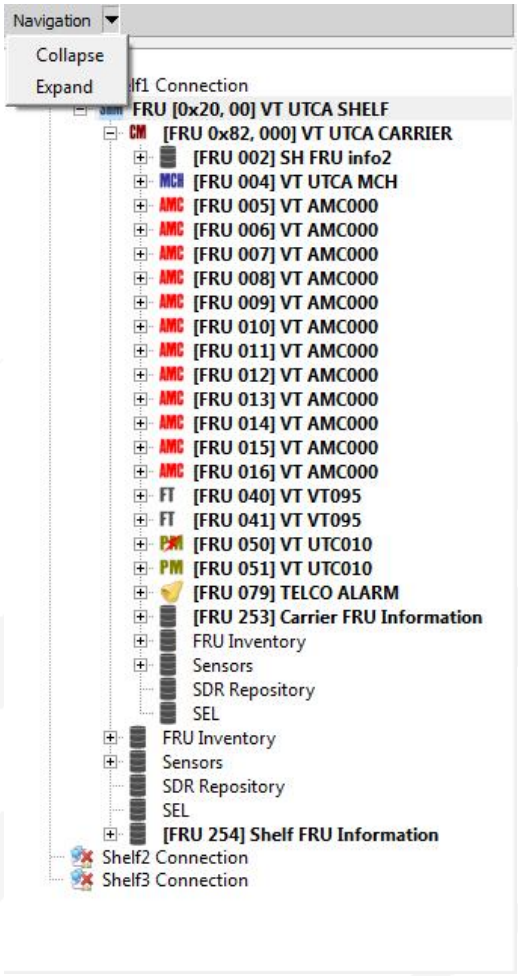


Figure 17: Navigation with Expand/Collapse Option

The expand/collapse navigation option can be used to fully expand or collapse the Shelf tree resources.

The following table represents the FRUs and entities under the Shelf navigation tree.

Cluster/Shelf/Carrier Resource	Level
Cluster	1
Shelf Manager	2
Carrier 1..16	3
Shelf FRU Inventory	3
Shelf Sensor Data Repository (SDR)	3
Shelf System Event Log (SEL)	3
Shelf Hot swap Sensor	3
Shelf FRU Information (FRU 254)	3

Carrier FRUs	4
Carrier Sensors	4
Carrier FRU Inventory	4
Carrier Sensor Data Repository (SDR)	4
Carrier System Event Log (SEL)	4

Table 6: Cluster Tree Hierarchy

3.8.2 Resource/Entity Icons

The navigation tree presents each resource or entity using an Icon which enables the user to easily identify its type. The following table lists the Icons and its type.

ICON	Resource / Entity
	Cluster
	Cluster's Shelf Connection
SHM	Shelf Manager
CM	Carrier Manager
	FRU Inventory
	Shelf Sensor Data Repository (SDR)
	Shelf System Event Log (SEL)
	Sensors
AMC	AMC
MCH	MCH
	Telco
FT	Fan Tray
PM	Active Power Module
PM	**Passive** Power Module
	Hotswap LED
	Error LED
	Health LED
	User LED

Table 7: Resource/Entity Icons

3.8.3 Expand and Collapse

The navigation tree can be fully expanded and collapsed using the navigation menu. Individual resource nodes can be expanded or collapsed using the + or – buttons.

3.8.4 Shelf/Carrier Commands

Selecting an entry in the navigation tree will provide details about the resource or entity.

Using the right mouse button, click on the resource or entity to obtain the list of commands available for that resource.

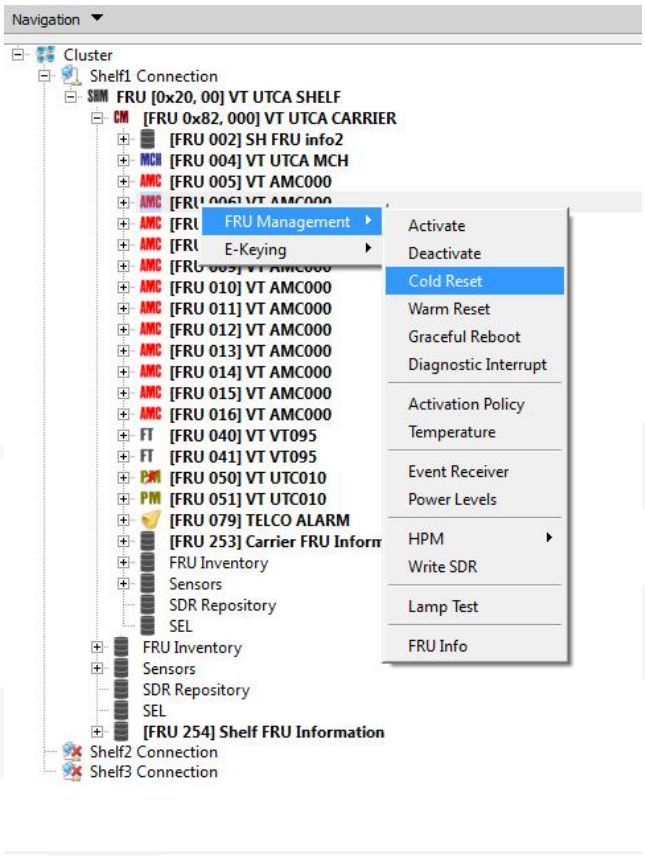


Figure 18: Resource/Entity Commands

The command options for a FRU are also be accessed using the resource or entity information menu or the Virtual Shelf/Carrier View.

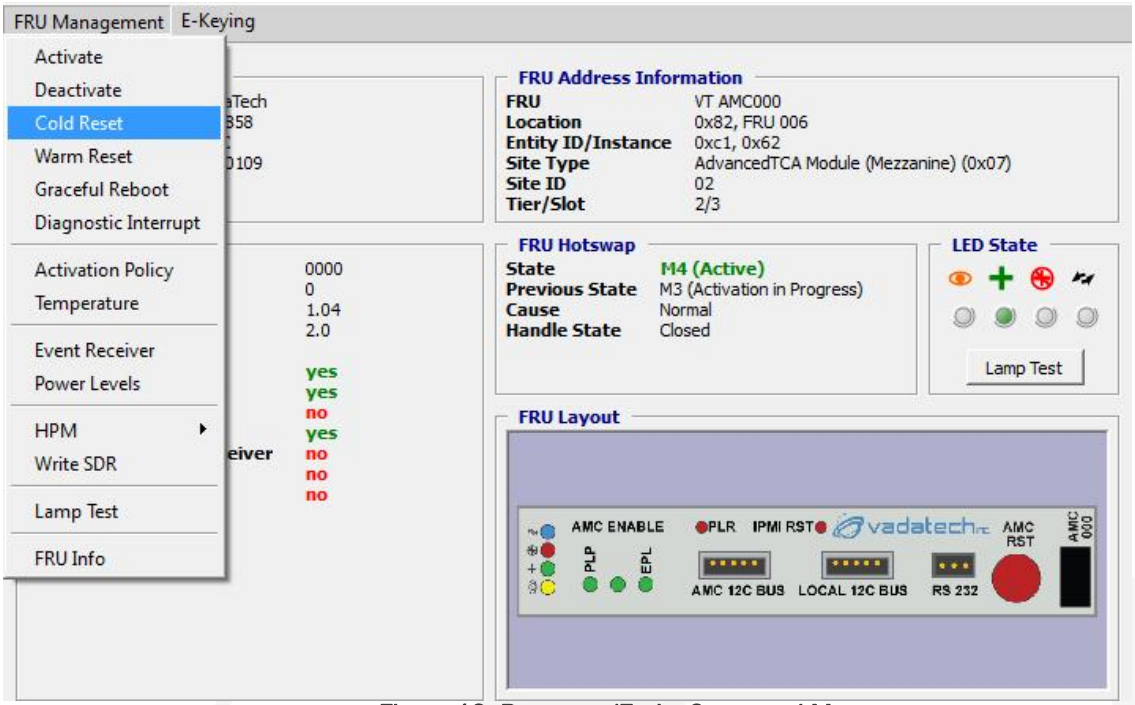


Figure 19: Resource/Entity Command Menu

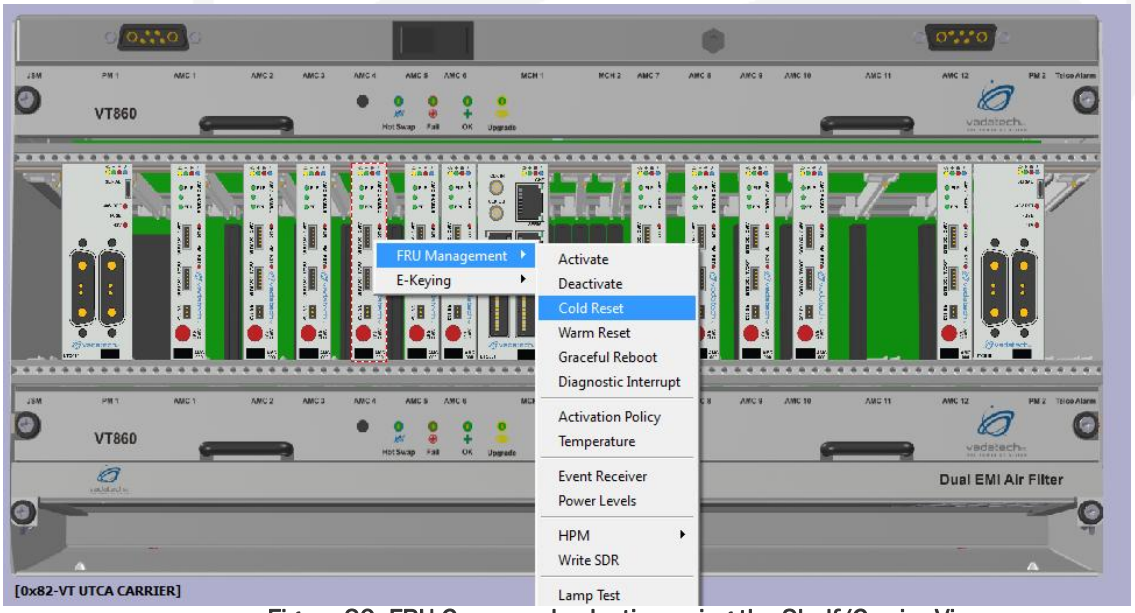


Figure 20: FRU Command selection using the Shelf/Carrier View

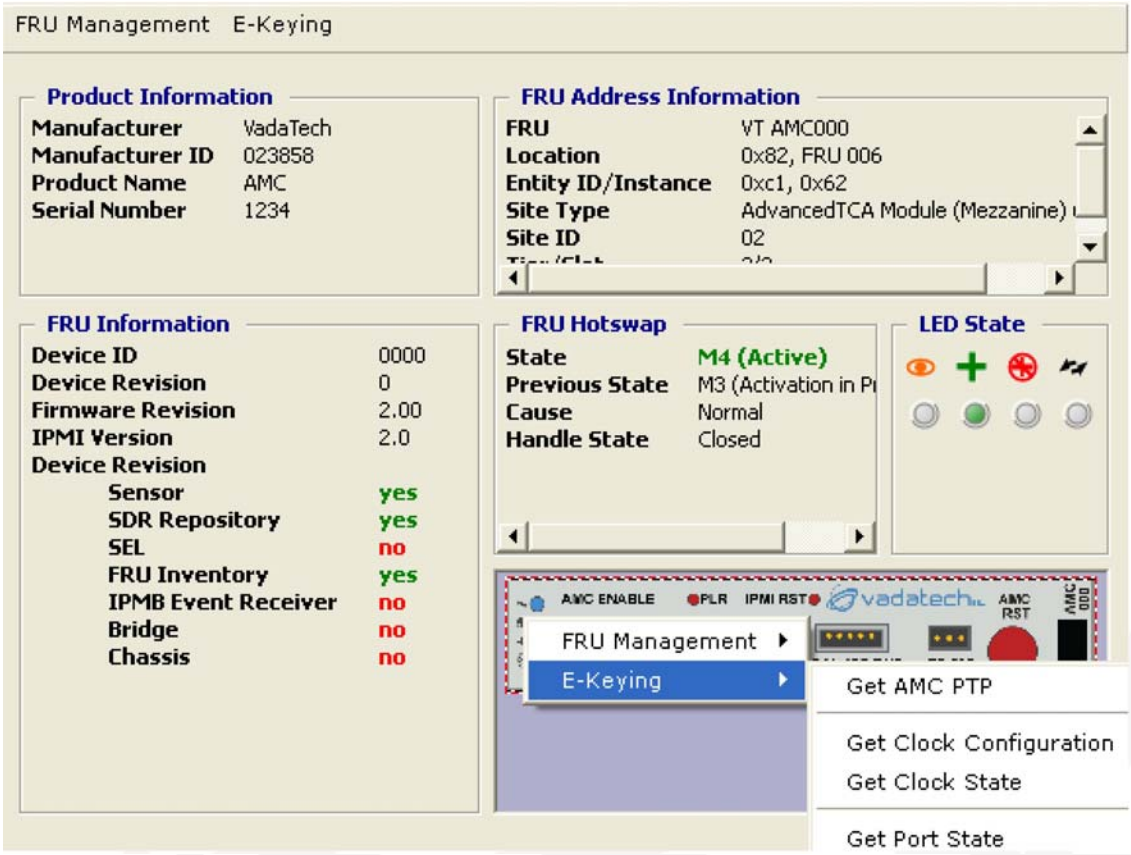


Figure 21: FRU Command selection using the FRU Image

The following table presents the list of commands that are applicable for each Resource or Entity.

Resource / Entity	Main Menu	Functions
Cluster Manager	N/A	N/A
Cluster's Shelf Connection	N/A	Disconnect
		Open Tab
Shelf Manager	FRU Management	Temperature
		Write SDR
		Lamp Test
		FRU Info
	Alerting	Get PEF Configuration
		Set PEF Configuration
		SNMP Trap Information
		SNMP Trap Test
	Cooling	Parameters
		Get Fan Geography
		Get Cooling Level
	LAN	Channel Access Get Channel Cipher Suites
		Get Channel Information

		Get LAN Configuration Set LAN Configuration
		IP Connection
		List Active Sessions
	Administration	User Access List Users
	System Management	Chassis Control Up
		Chassis Control Down
		Chassis Control Reset
		Chassis Control Soft Shutdown
		Chassis Control Diagnostic Interrupt
		Shelf Information
		List Board Details
Carrier Manager	FRU Management	Activate
		Deactivate
		Set Extracted
		Temperature
		Write SDR
		Lamp Test
		FRU Info
	Alerting	Get PEF Configuration
		Set PEF Configuration
		SNMP Trap Information
		SNMP Trap Test
	Cooling	Get Cooling Level
	E-Keying	Get Carrier PTP
		Get Clock PTP
		Get Enabled Ports
	LAN	Channel Access Get Channel Cipher Suites
		Get Channel Information
		Get LAN Configuration Set LAN Configuration
		IP Connection
		List Active Sessions
	Power	Get Power Distribution
		Get Power Policy
	Administration	User Access List Users
	System Management	Chassis Control Up
		Chassis Control Down
		Chassis Control Reset
		Chassis Control Soft Shutdown
		Chassis Control Diagnostic Interrupt
		Carrier Information

		List Board Details
		Activation Sequence
		Failover
MCH, AMC, OEM	FRU Management	Activate
		Deactivate
		Cold Reset
		Warm Reset
		Graceful Reboot
		Diagnostic Interrupt
		Activation Policy
		Temperature
		Event Receiver
		Power Levels
		HPM
		Write SDR
		Lamp Test
		FRU Info
	E-Keying	Get AMC PTP
		Get Clock Configuration
		Get Clock State
		Get Port State

Table 8: Resource/Entity Commands

Each entry in the navigation tree provides a specific set of commands that can be used to obtain information, current status of the resource or entity. The following sections will describe these commands in detail.

3.9 Shelf Manager Commands

3.9.1 FRU Management

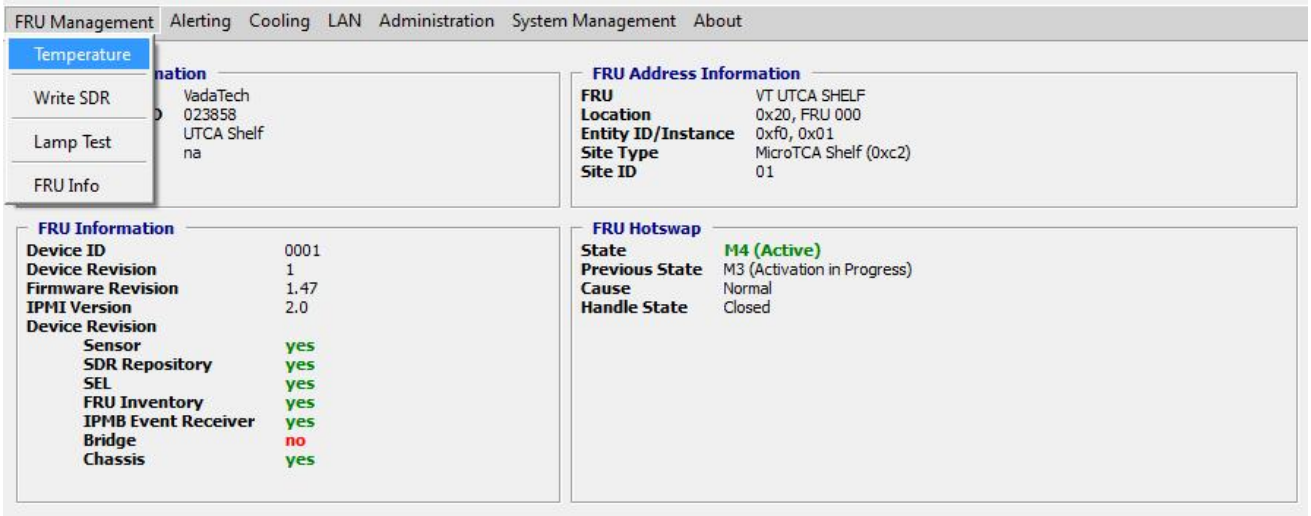


Figure 22: Shelf Manager FRU Management Commands

3.9.1.1 Temperature

The Temperature command is used to obtain the current status of all the temperature sensors that are present on the target FRU.

3.9.1.2 Write SDR

This command is used to write SDR information from file to the selected FRU.

3.9.1.3 Lamp Test

This command is used to test the LEDs on the selected FRU.

3.9.1.4 FRU Info

This command is used to obtain the following information about the ShMC:

- Product information
- FRU Information as described by the Get Device ID Command
- Address information
- Current hot swap state
- LED State
- FRU Image (if one is available)

3.9.2 Alerting

This Shelf FRU command set is used to program the Platform Event Filters (PEF) and Configure and test SNMP Traps.

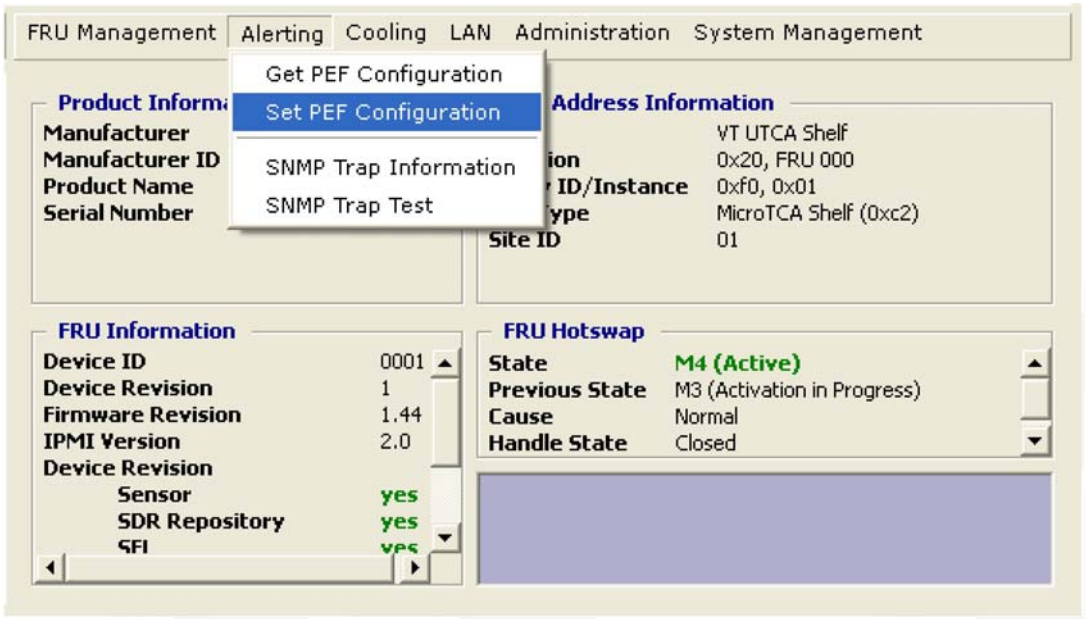


Figure 23: Shelf Manager Alerting Commands

3.9.2.1 Get PEF Configuration

This command is used to get the Shelf Manager Platform Event Filter Configuration.

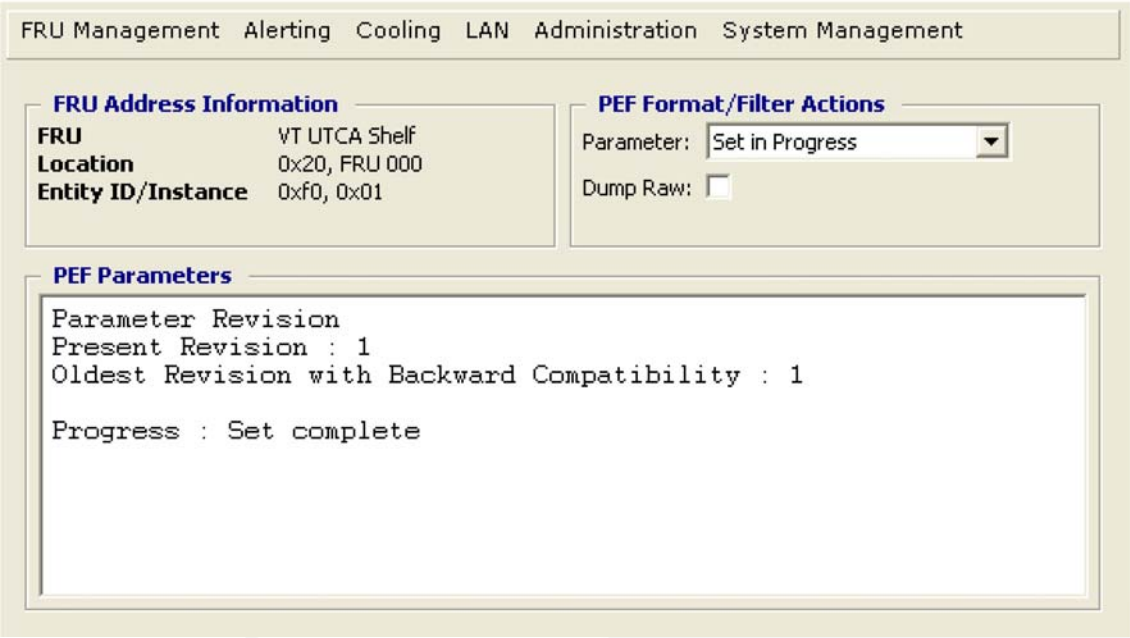


Figure 24: Get PEF Configuration

The PEF Parameters can be selected using the PEF Format/Filter actions. For more information on PEF Parameters refer to IPMI 2.0 Specification.

3.9.2.2 Set PEF Configuration

This command is used to set the Shelf Manager Platform Event Filter Configuration.

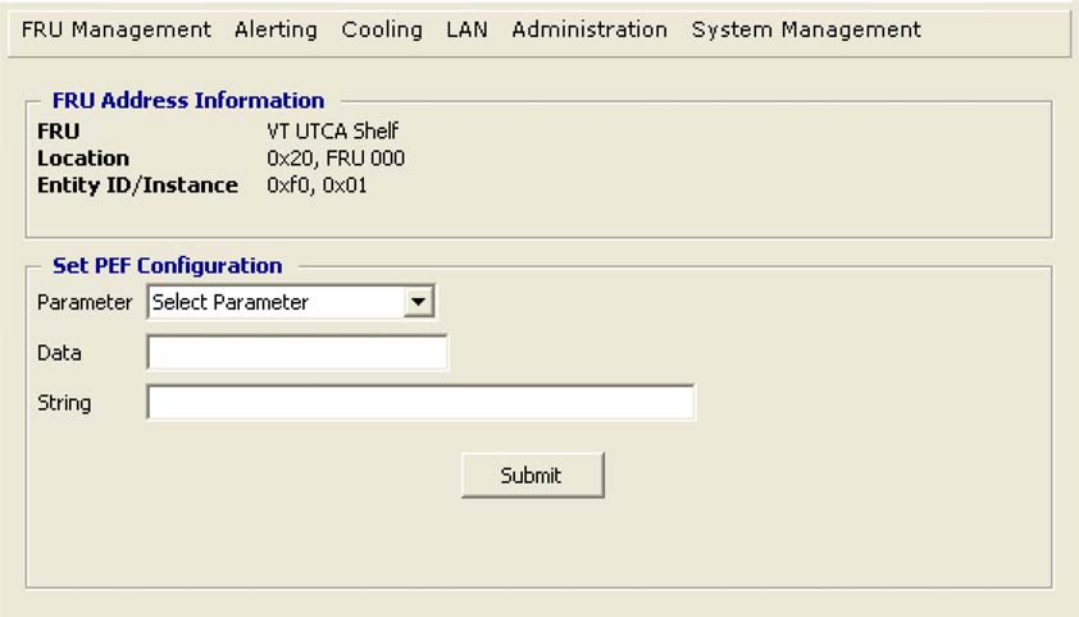


Figure 25: Set PEF Configuration

3.9.2.3 SNMP Trap Information

This command is used to get the SNMP Trap destination addresses currently programmed in the Shelf Manager SNMP Configuration.

For each SNMP Trap destination address a table of IPMI channel and its alerting state is displayed.

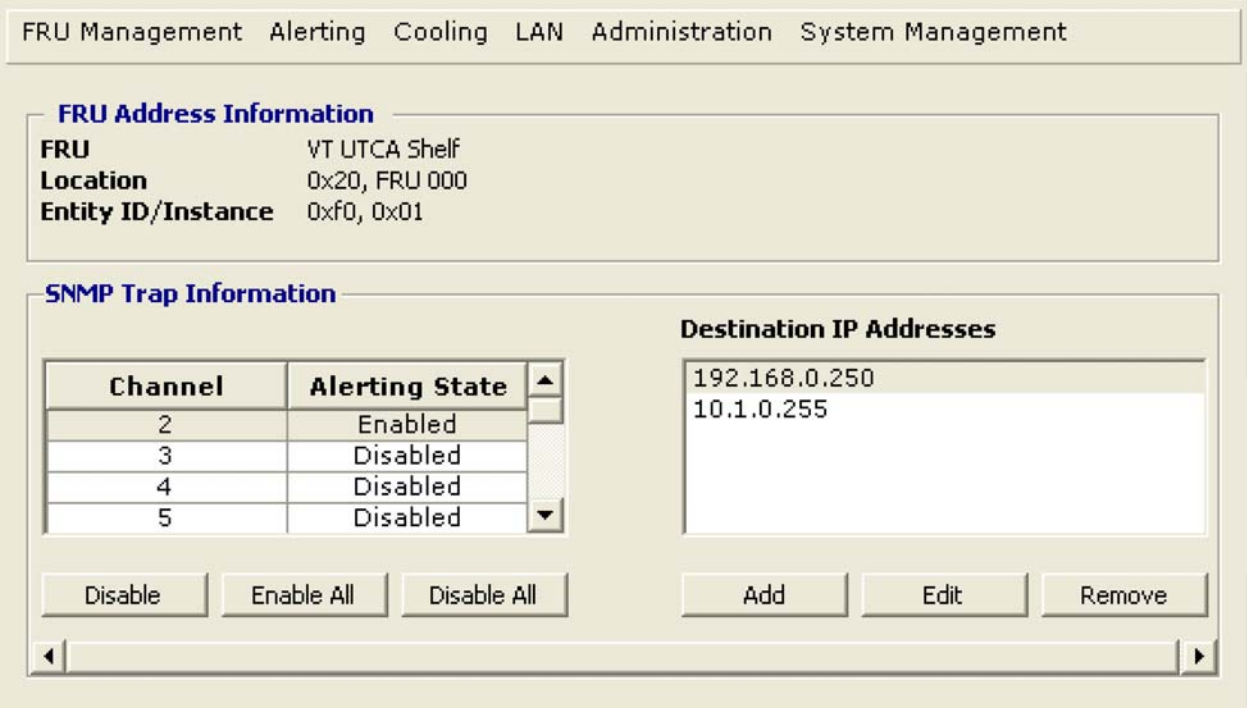


Figure 26: SNMP Trap Information

Controls:

- SNMP traps can be enabled or disabled per IPMI channel.
- Destination IP Addresses can be added, removed or edited.

3.9.2.4 SNMP Trap Test

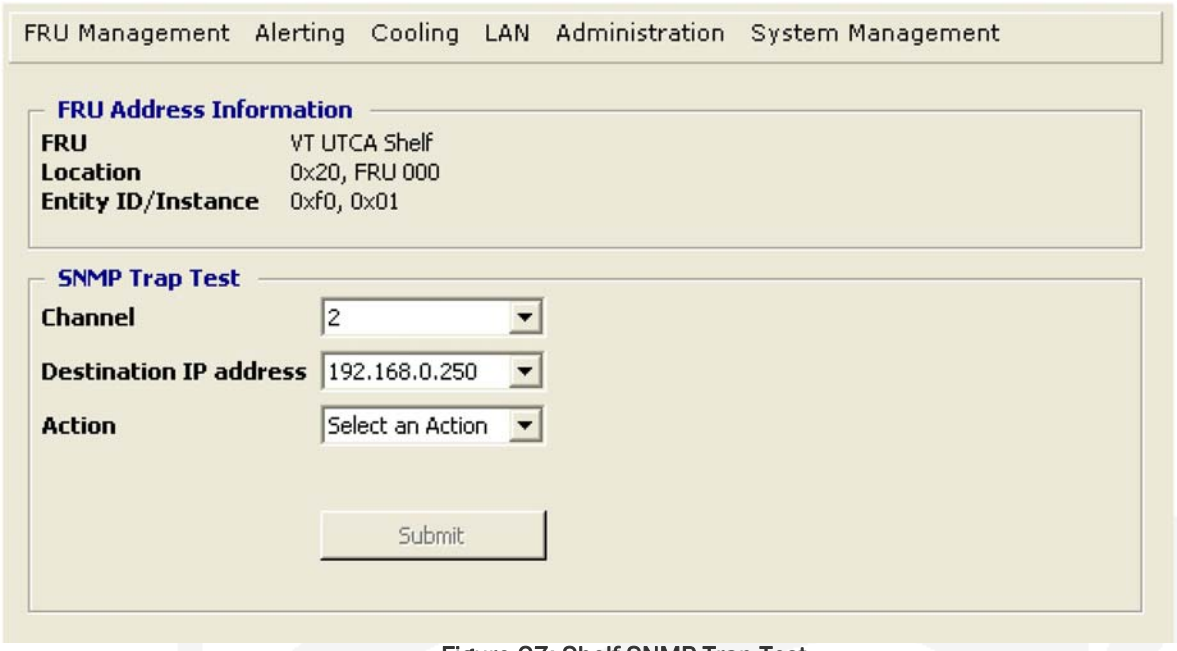


Figure 27: Shelf SNMP Trap Test

This command can be used to select an IPMI Channel, a Destination IP Address and an action to perform on the selected parameters. To use the SNMP Trap Test the IPMI Channel on the selected Destination IP Address must be at enabled state.

Actions:

- Get the status of the SNMP Trap Test issued previously to the server.
- Clear the status of the SNMP Trap Test issued previously to the server.

3.9.3 Cooling

The cooling commands are used to configure the Shelf Manager cooling management and to obtain the Shelf cooling geography information.

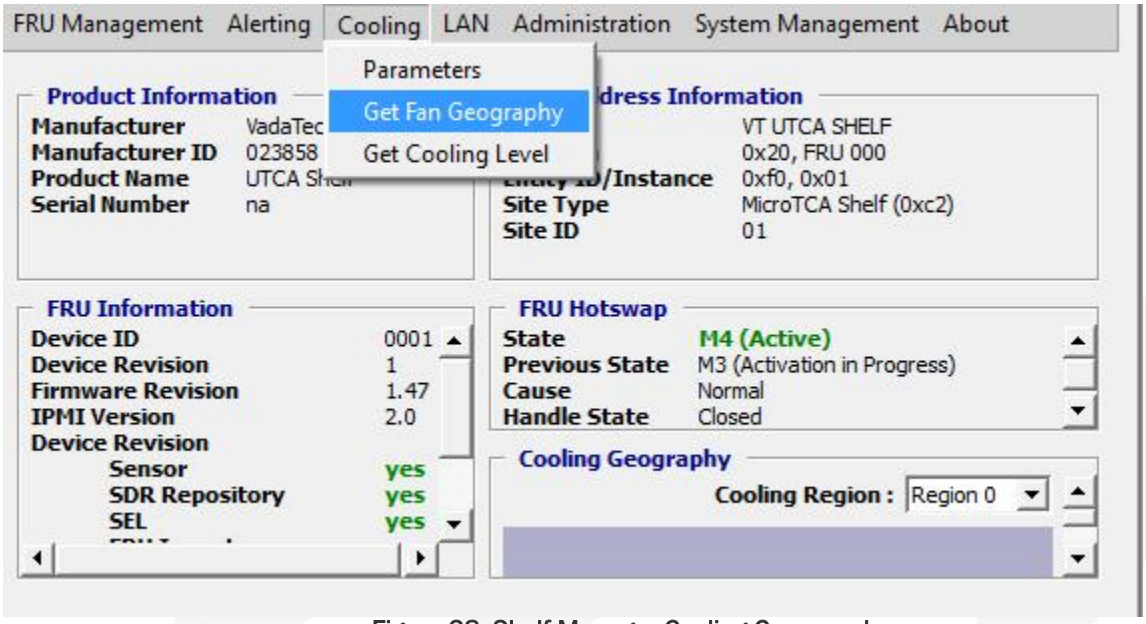


Figure 28: Shelf Manager Cooling Commands

3.9.3.1 Parameters

This command is used to configure the Shelf cooling parameters stored in the SHMC FRU Inventory.

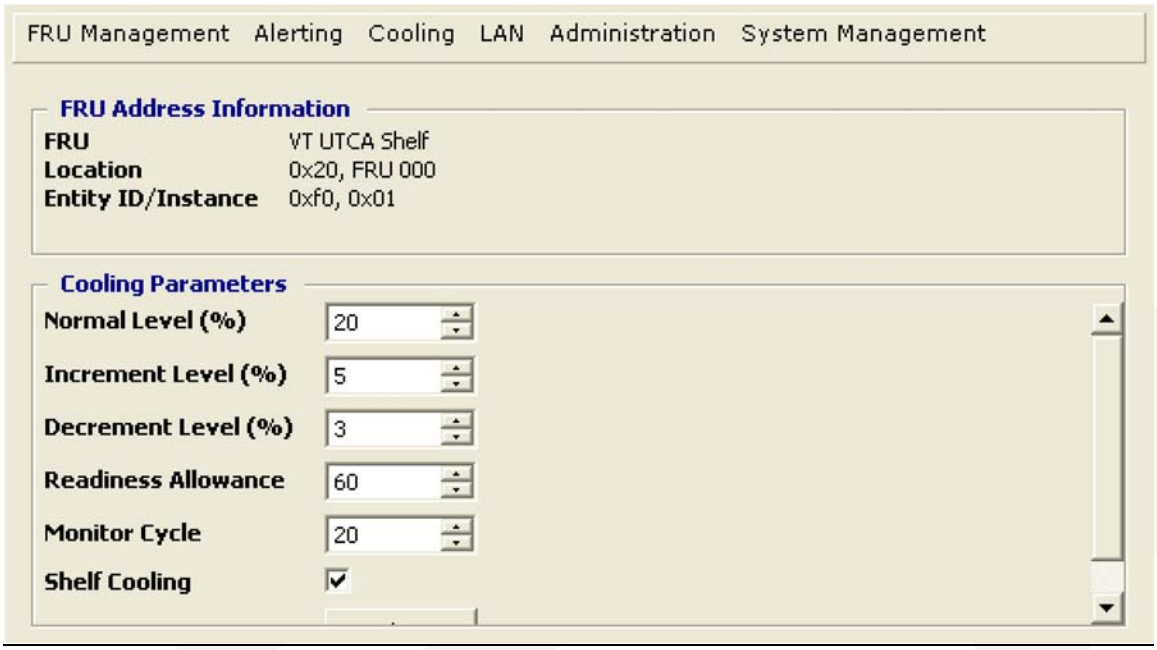


Figure 29: Shelf Cooling Parameters

Configurable Parameters:

- Fan Normal Operating Levels, Increment and Decrement Levels, Cooling Readiness Allowance, and Monitor Cycle can be set.
- The Shelf cooling management can be enabled or disabled.

3.9.3.2 Get Fan Geography

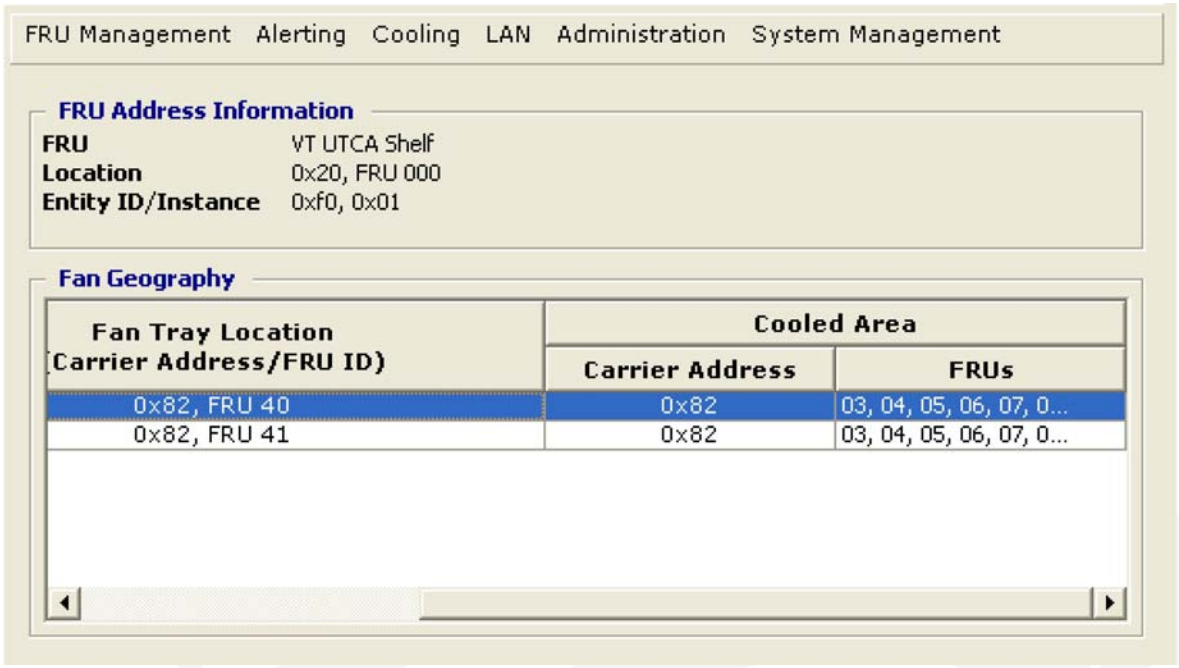


Figure 30: Shelf Fan Geography

This command is used to obtain the Shelf Fan Geography Information.

Shelf Manager will manage the Shelf-level cooling, based on the MicroTCA Fan Geography record(s) stored in the Shelf FRU Information. Shelf Managers must interact with a Carrier Manager for any Cooling Unit that is part of that Carrier Manager's MicroTCA Carrier. The mapping between FRUs and the Cooling Units that cool those FRUs is defined by the MicroTCA Fan Geography record(s). Each Cooling Unit FRU entry associates a list of FRU Device IDS and the Carrier Number the FRUs are in with the Carrier Number and FRU Device of the Cooling Unit that covers them.

3.9.3.3 Get Cooling Level

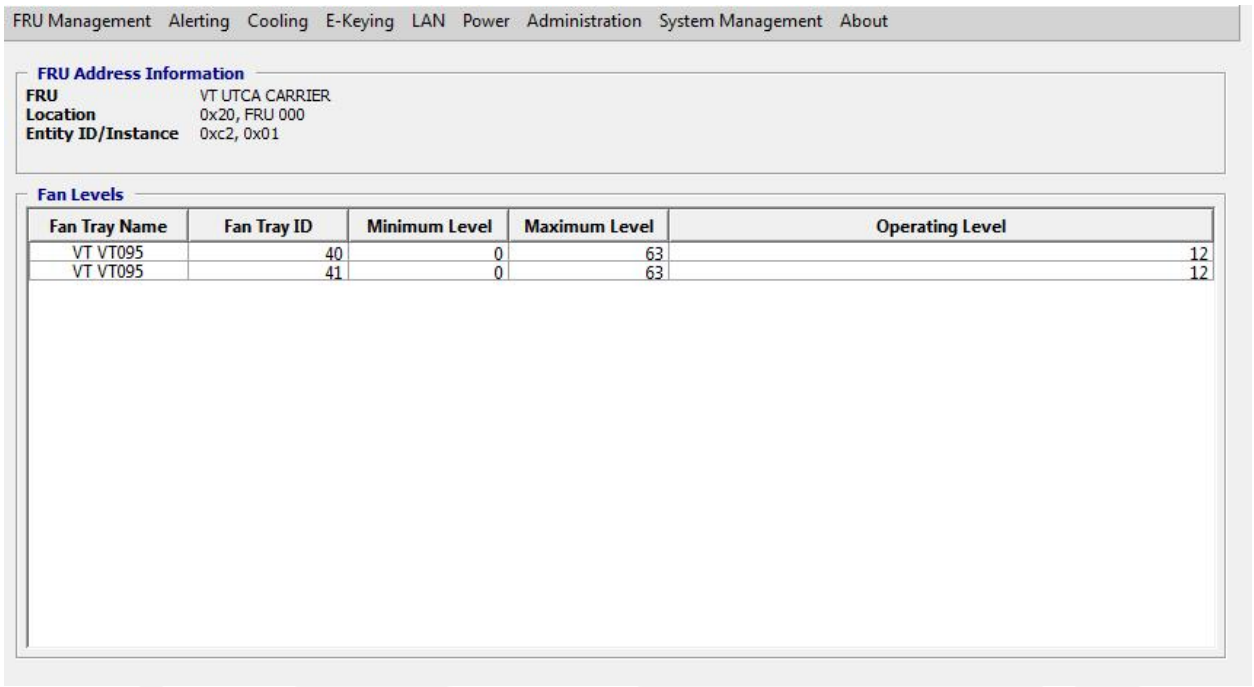


Figure 31: Cooling Level

This command is used to obtain the Cooling level.

The command retrieves Fan Tray Name and ID as well as Operating (Current) Cooling level and available Maximum and Minimum Cooling Levels.

3.9.4 LAN

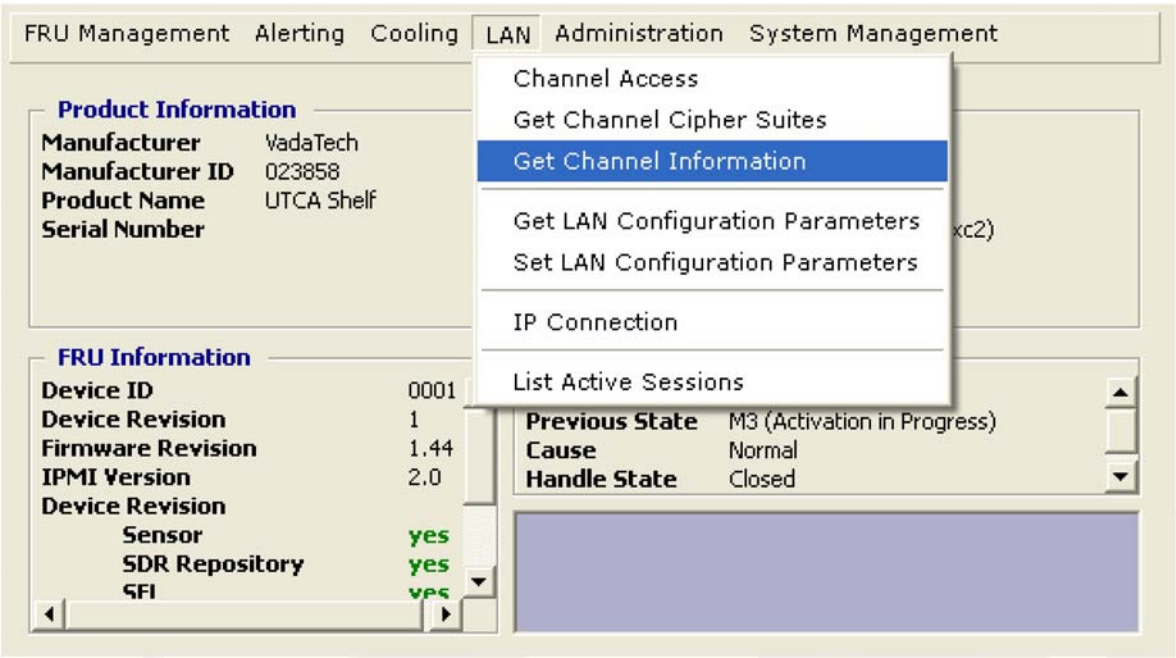


Figure 32: Shelf Manager LAN Configuration Commands

3.9.4.1 Get Channel Access

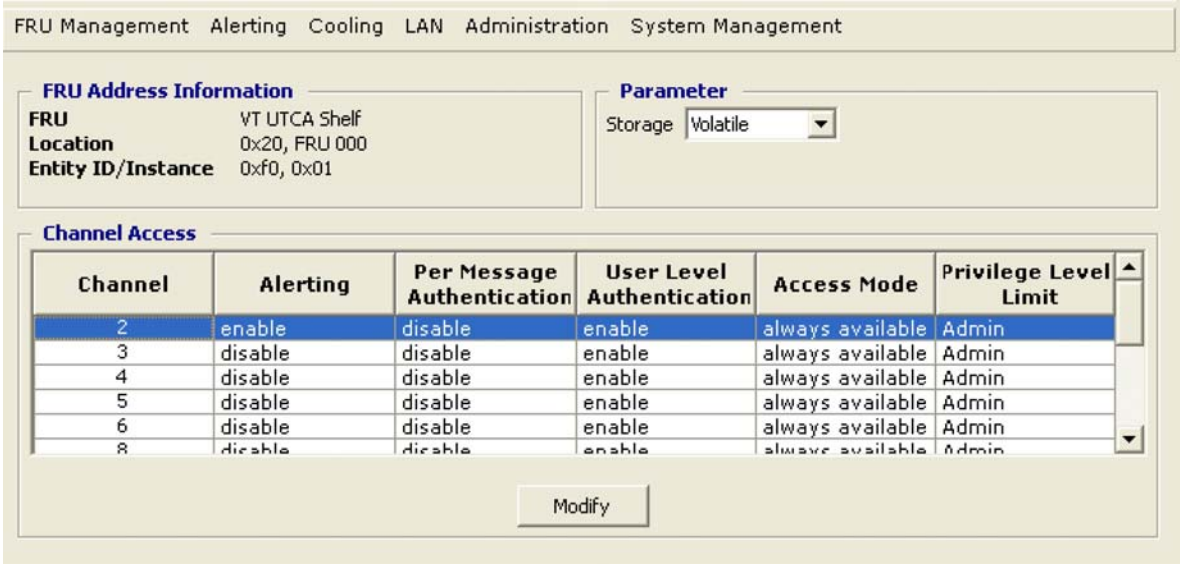


Figure 33: Shelf Manager Channel Access Parameters

3.9.4.2 Get Channel Cipher Suites

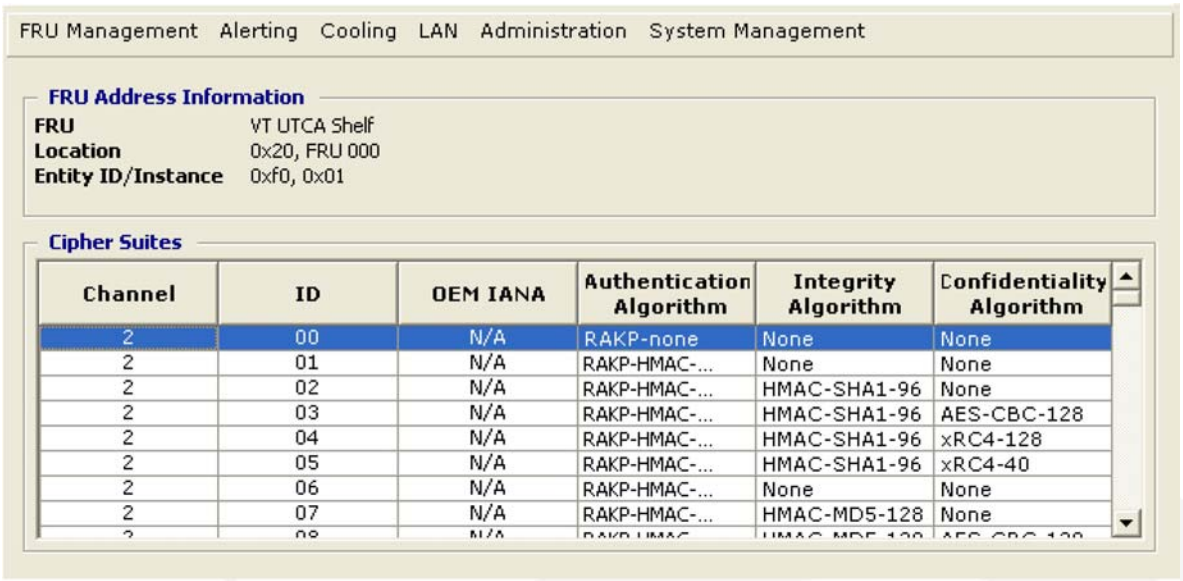


Figure 34: Shelf Manager Channel Cipher Suites

3.9.4.3 Get Channel Information

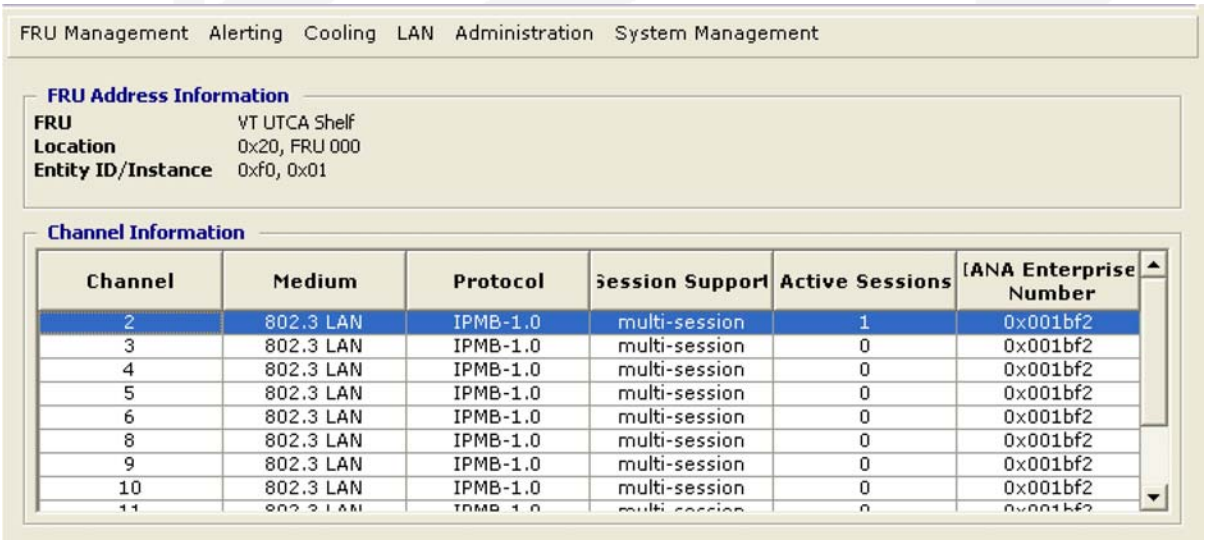


Figure 35: Shelf Manager Channel Information

3.9.4.4 Get LAN Configuration Parameters

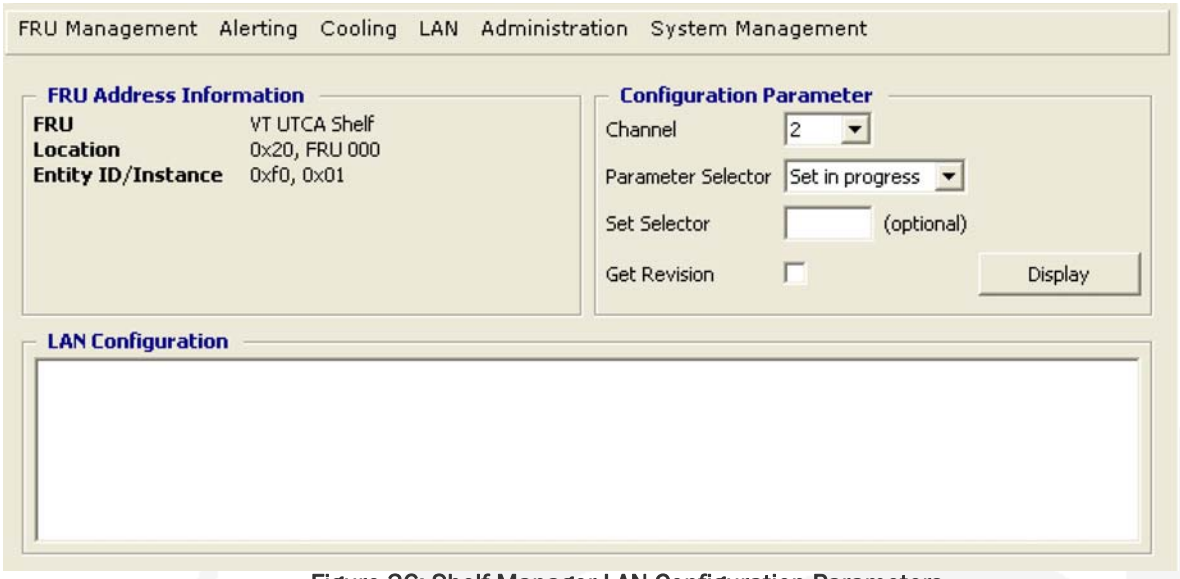


Figure 36: Shelf Manager LAN Configuration Parameters

3.9.4.5 Set LAN Configuration Parameters

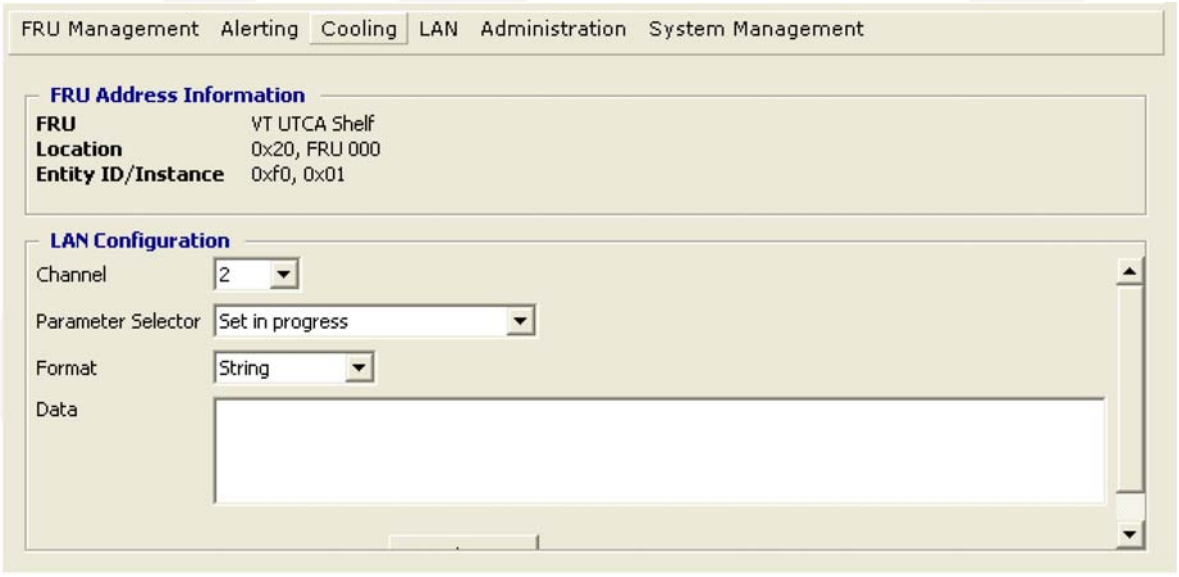


Figure 37: Shelf Manager Set LAN Configuration Parameters

3.9.4.6 Shelf IP Connection

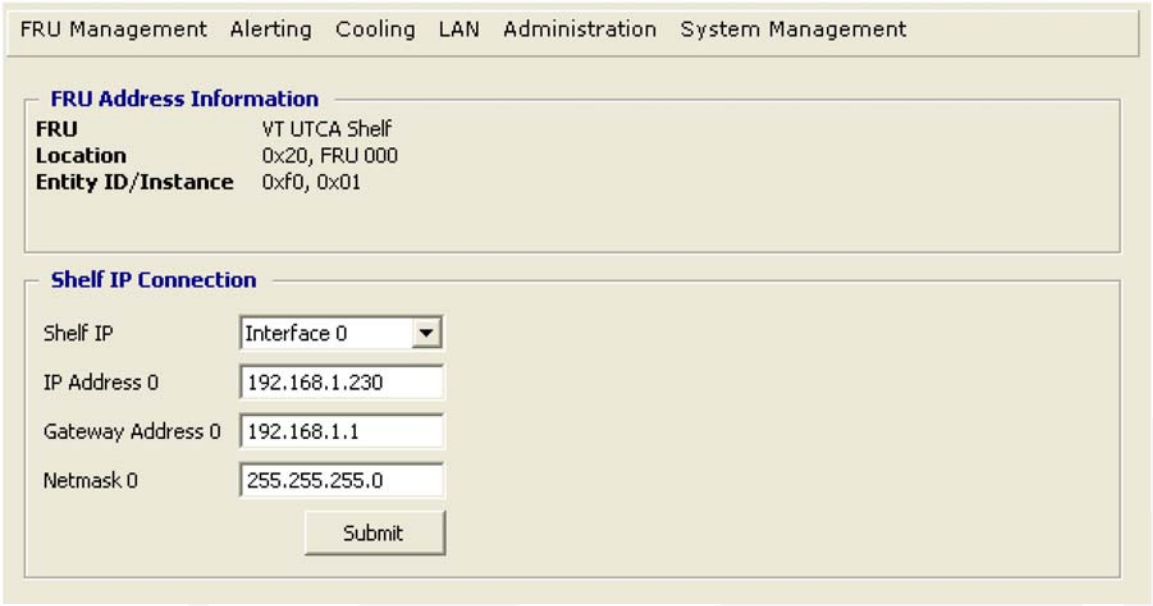


Figure 38: Shelf Manager Self IP Connection

There are two Shelf Manager Interfaces defined by the MicroTCA Specification. These Interfaces are the out of band connection to the Shelf Manager. This command is used to setup these two IP Connections to the Shelf Manager.

3.9.4.7 List Active Sessions

This command lists all the currently active sessions to the Shelf Manager.

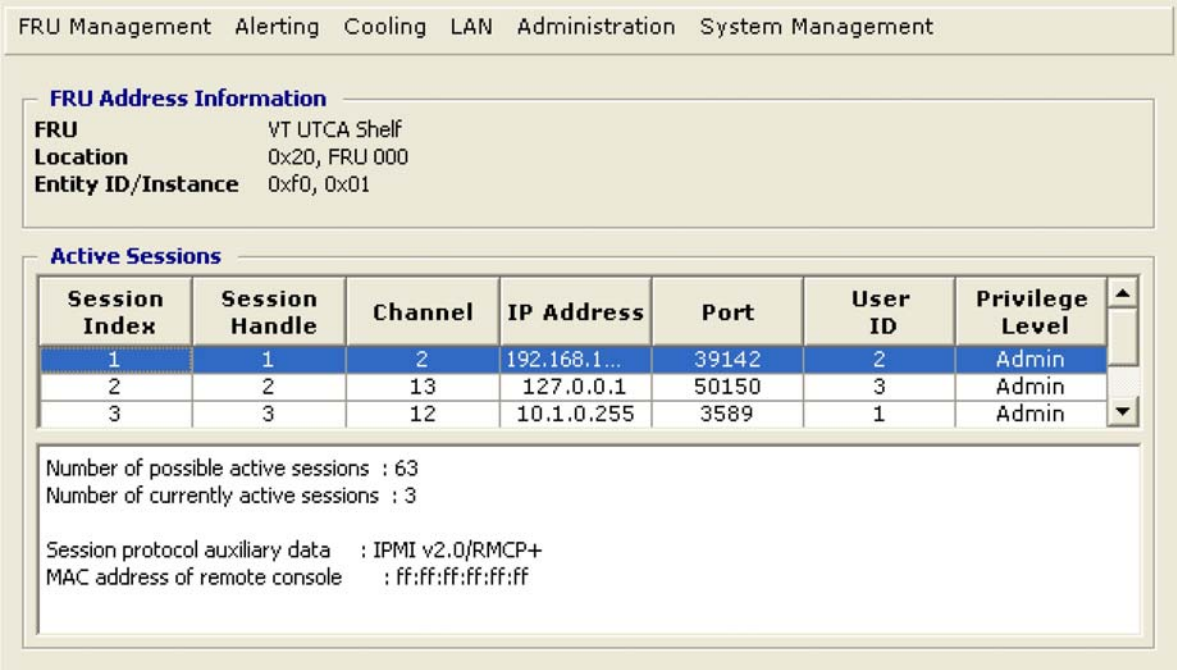


Figure 39: Shelf Manager List Active Sessions

3.9.5 Administration

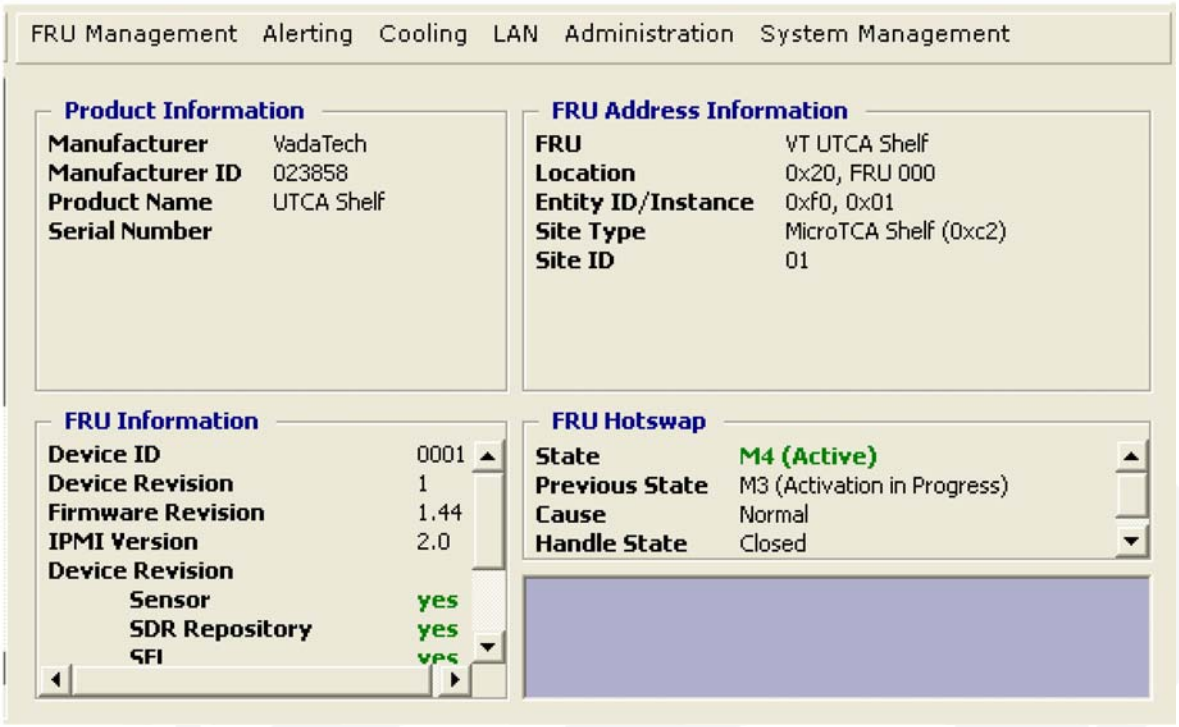


Figure 40: Shelf Manager Administration Commands

3.9.5.1 User Access

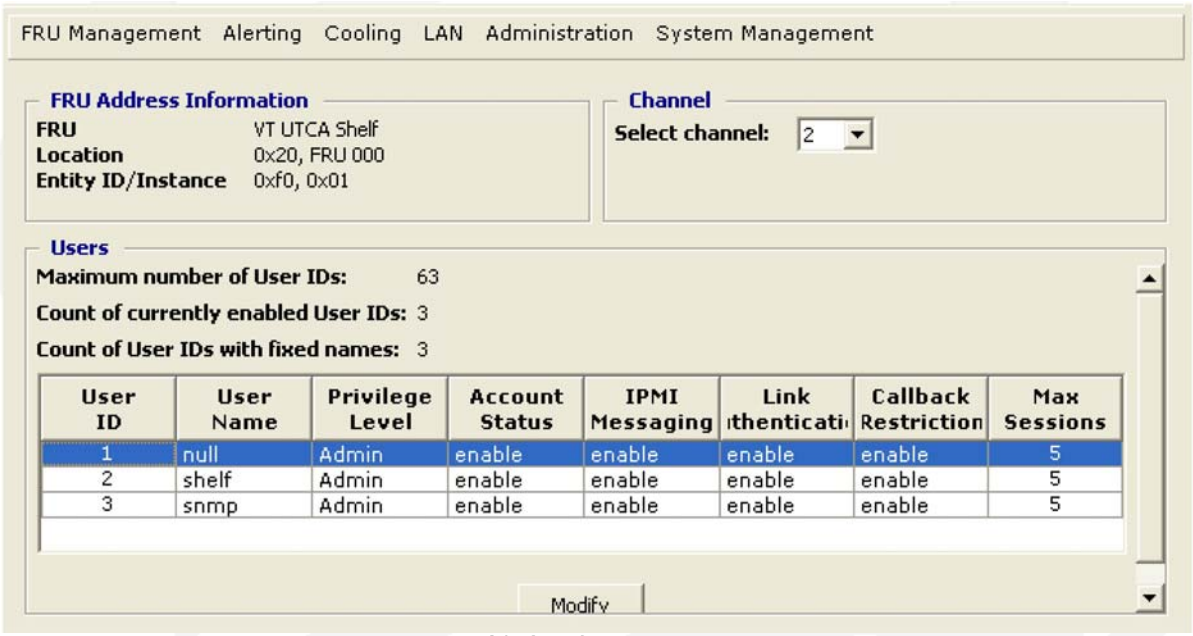


Figure 41: Shelf Manager User Access

3.9.5.2 List Users

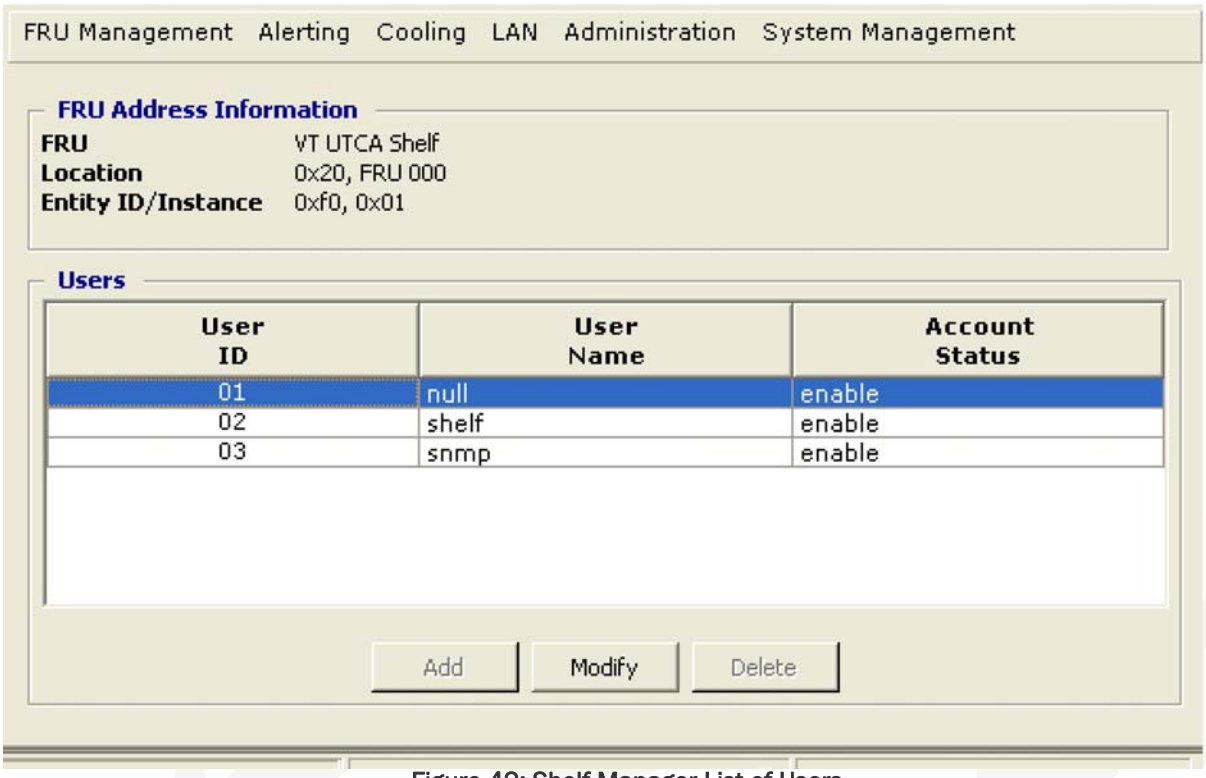


Figure 42: Shelf Manager List of Users

3.9.6 Shelf Management

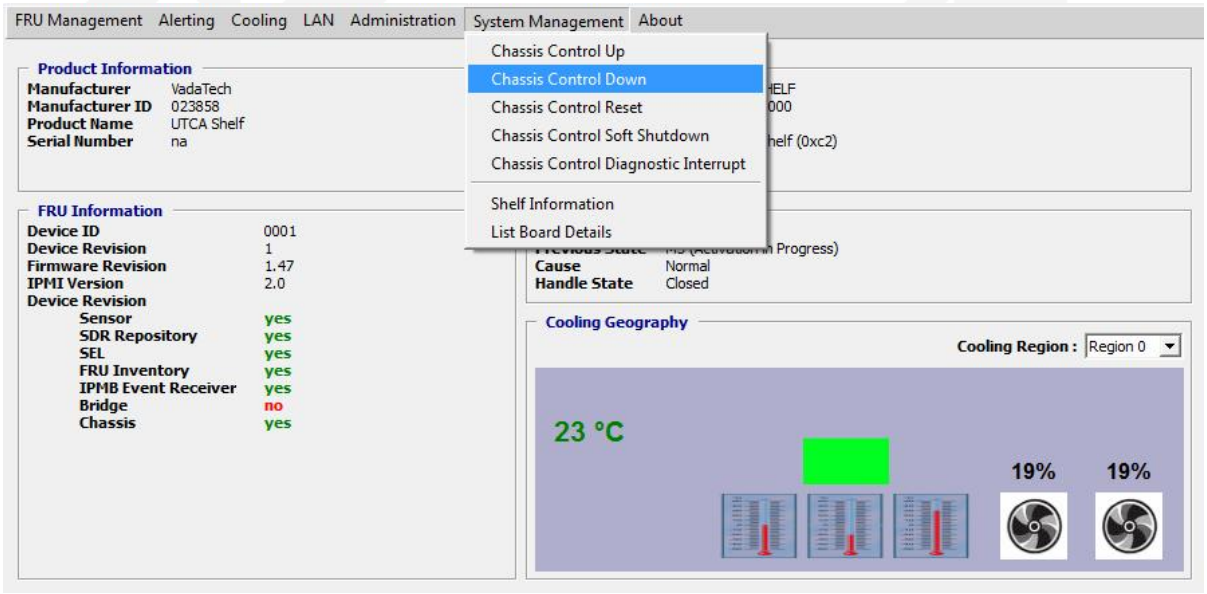


Figure 43: Shelf Manager System Management Commands

3.9.6.1 Chassis Controls

Command	Description
Up	Activates all the FRUs in the specified Carrier
Down	Deactivates all the FRUs in the specified Carrier
Reset	Issue cold reset on all the powered FRUs in the Carrier
Soft Shutdown	Issue cold reset on all the powered FRUs in the Carrier
Diagnostic Interrupt	Pulse diagnostic interrupt on all the FRUs in the Carrier

Table 9: Shelf Chassis Controls

3.9.6.2 Shelf Information

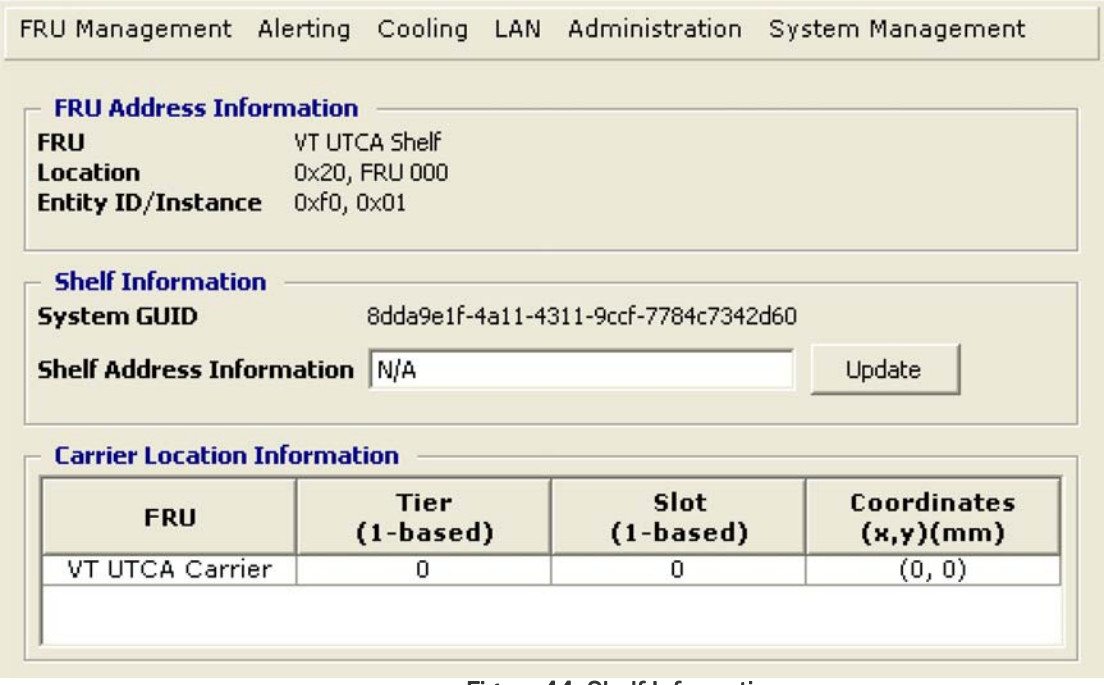


Figure 44: Shelf Information

The location of the MicroTCA Carrier within a Shelf is implementation-defined by the system integrator. The MicroTCA Shelf Information record as described in the Shelf FRU Information contains mapping information used to describe the physical location of Carriers and Modules in the Shelf.

3.9.6.3 List Board Details

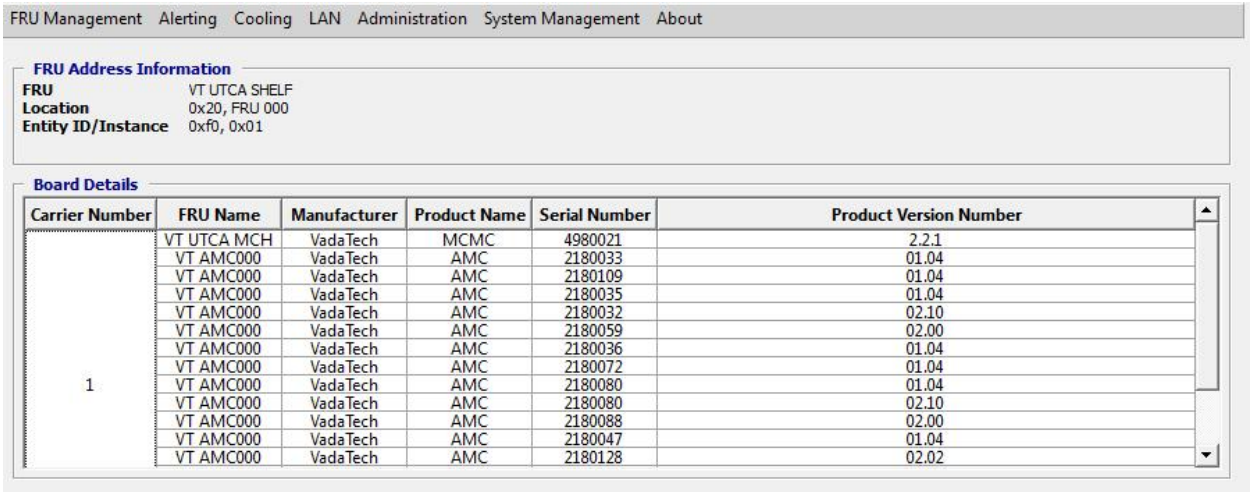


Figure 45: Shelf Board Details

This command is used to obtain information about the devices installed in the Shelf.

3.10 Shelf FRU Information

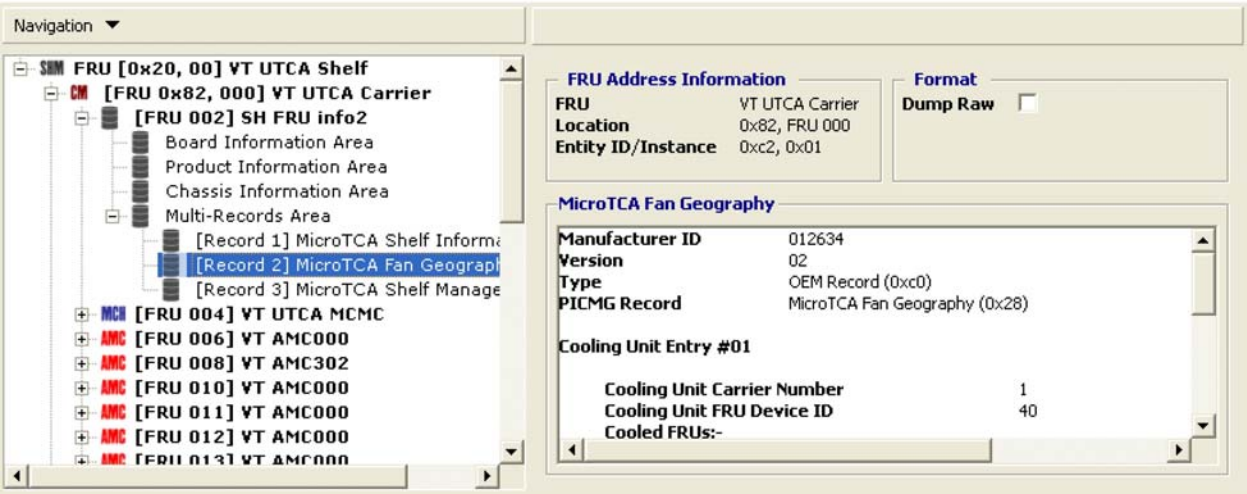


Figure 46: Shelf FRU Information

The MicroTCA Shelf FRU Information is specified as a logical entity and can be located in the Carrier FRU Information device. The Shelf FRU Information is located in one of the Carrier FRU Information Device.

The contents the Shelf FRU Information can be viewed by navigating further into the Board, Product, Chassis and Multi-Record sections of the FRU Inventory.

3.11 Carrier Manager

3.11.1.1 FRU Info

This command is used to obtain the following information regarding the MCMC:

- Product information
- FRU Information as described by the Get Device ID Command
- Address information
- Current hot swap state
- FRU Image (if available)

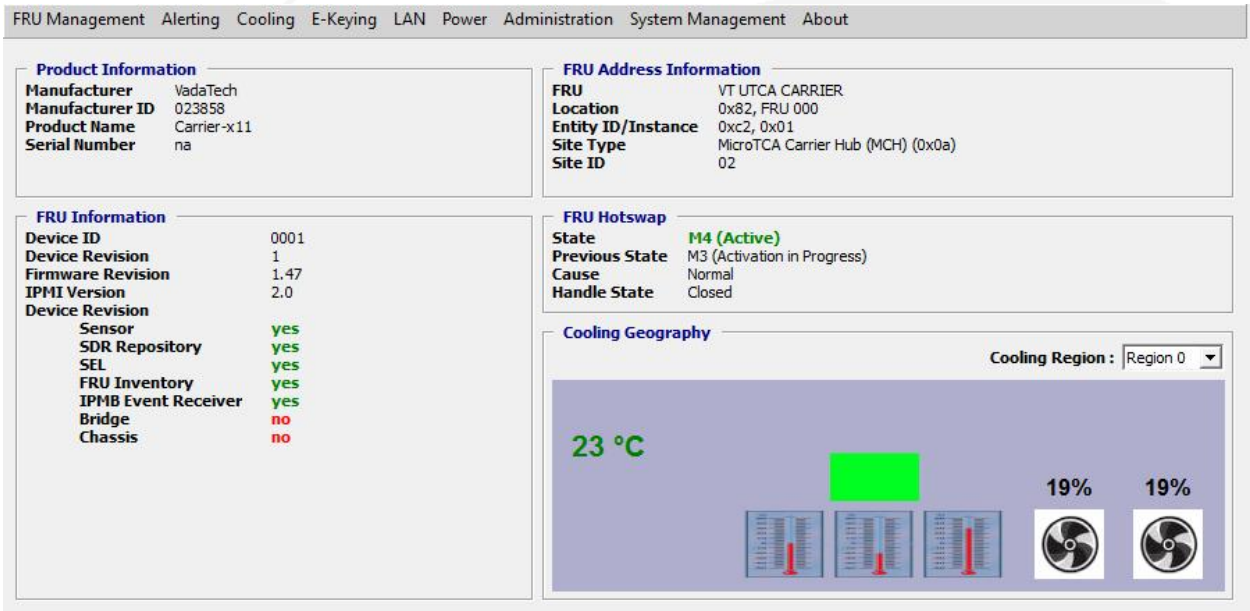


Figure 47: FRU Information

3.11.1.2 FRU Activate

This command is used to activate all the FRUs in the Carrier.

3.11.1.3 FRU Deactivate

This command is used to deactivate all the FRUs in the Carrier.

3.11.1.4 Set Extracted

This command is used to set the Carrier has been removed or extracted from the Shelf. Normally this command is used if a Carrier was removed from a Shelf domain, and currently remains at a Communication Lost state.

3.11.1.5 Write SDR

This command is used to write SDR information from file to the selected FRU.

3.11.1.6 Lamp Test

This command is used to test the LEDs on the selected FRU.

3.11.1.7 FRU Info

This command is used to obtain information about the selected FRU.

3.11.2 Alerting

These set of commands is used to configure and enable Carrier Alerting. The Carrier Manager Alerting is similar to the Shelf Manager. Please refer to Section 4.9.2

3.11.3 Cooling

3.11.3.1 Parameters

This command is used to configure the Carrier cooling parameters.

The Shelf cooling parameters is stored in the MCMC FRU Inventory. The VadaTech Carrier cooling parameters is similar to the VadaTech Shelf Manager. Please refer to Section 4.9.3

3.11.3.2 Get Fan Geography

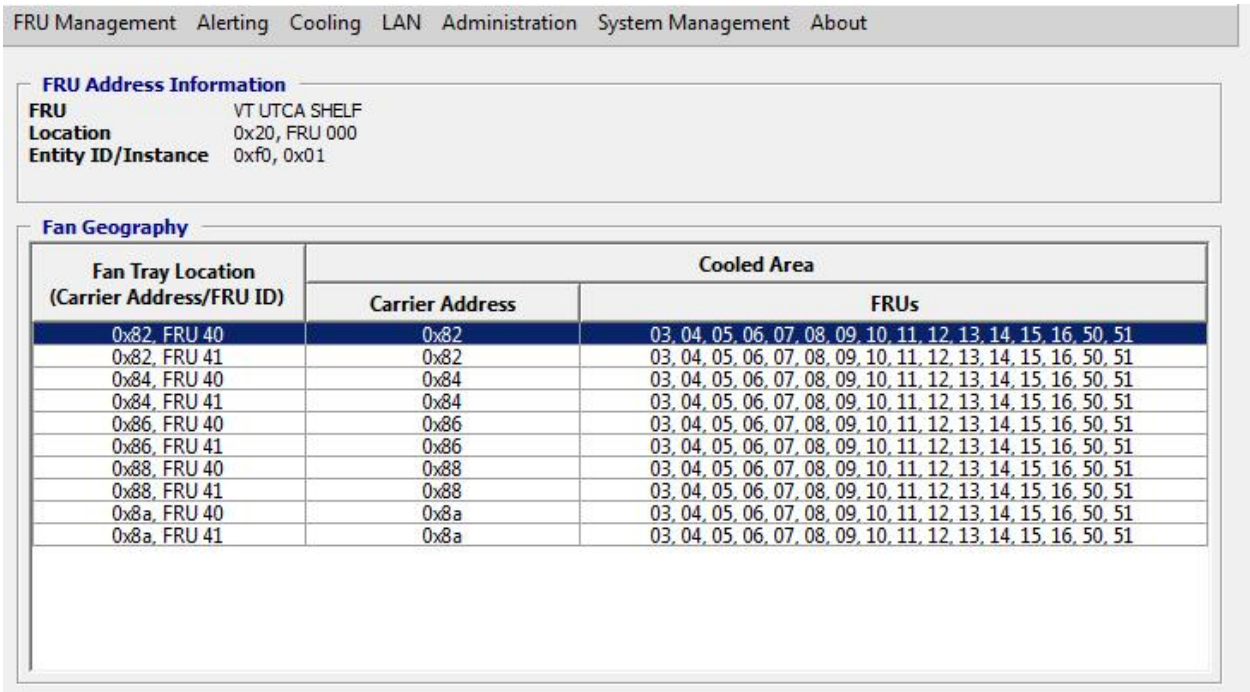


Figure 48: Carrier Fan Geography

This command is used to obtain the fan geography information for the VadaTech Carrier Manager.

This command is only available when connected to the VadaTech Carrier Manager. The VadaTech Carrier Manager is capable of managing its chassis cooling provided one or more Fan Tray(s) are available in the chassis. When a Shelf Manager is absent or communication is lost with the Shelf Manger the Carrier Manager will automatically take over its cooling. This is so the Carrier cooling is not compromised if the Shelf Manger communication was lost.

3.11.4 E-Keying

3.11.4.1.1 Get Carrier Point to Point

This command is used to obtain the Carrier Point-to-Point Information.

The Carrier Point-to-Point Connectivity record contains information about the MicroTCA Carrier physical connections, as defined by the Backplane implementation. The Carrier Point-to-Point Connectivity record is located in the Carrier FRU Information. The fields in these records describe how Fabric connectivity is routed.

The System Manager lists the Carrier PTP records as defined in the Carrier FRU Information. The record information can be viewed by selecting the respective record in the Record/Descriptor Table.

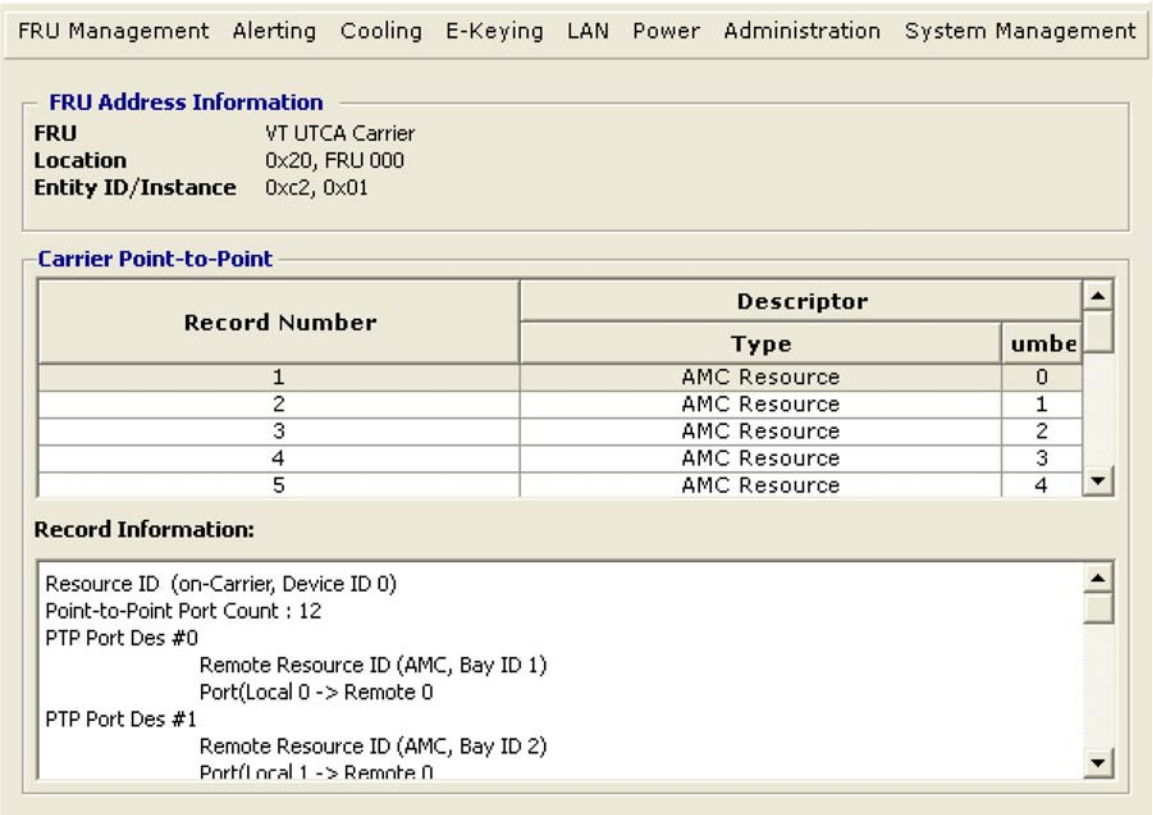


Figure 49: Carrier Point-to-Point

3.11.4.2 Get Clock Point to Point

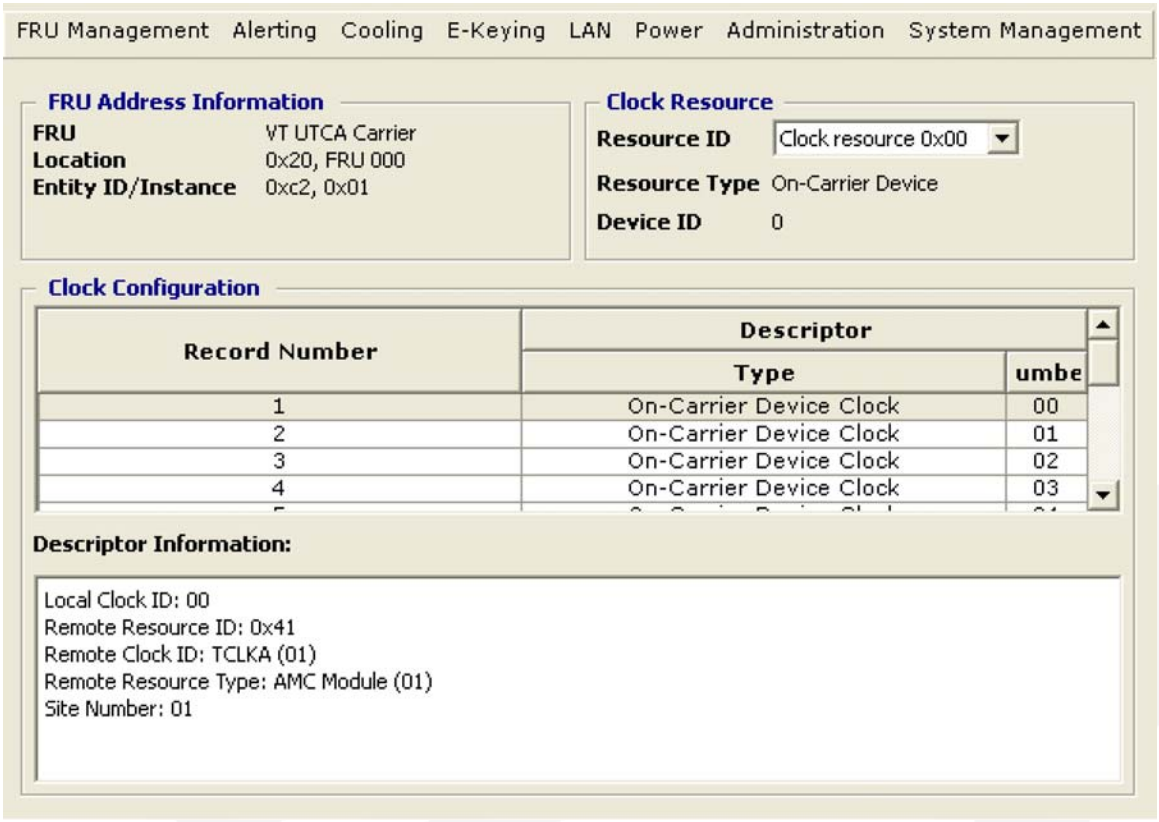
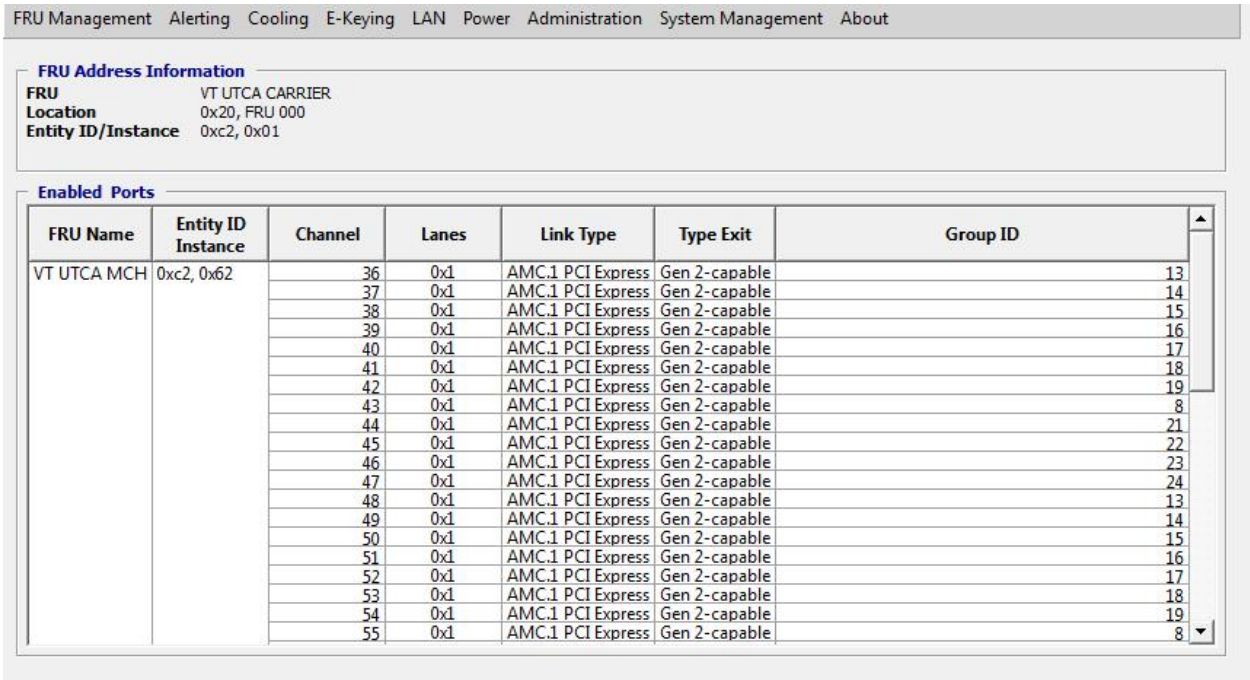


Figure 50: Clock Point-to-Point

This command is used to obtain the Carrier Clock Point-to-Point information.

3.11.4.3 Get Enabled Ports



FRU Name	Entity ID Instance	Channel	Lanes	Link Type	Type Exit	Group ID
VT UTCA MCH	0xc2, 0x62	36	0x1	AMC.1 PCI Express	Gen 2-capable	13
		37	0x1	AMC.1 PCI Express	Gen 2-capable	14
		38	0x1	AMC.1 PCI Express	Gen 2-capable	15
		39	0x1	AMC.1 PCI Express	Gen 2-capable	16
		40	0x1	AMC.1 PCI Express	Gen 2-capable	17
		41	0x1	AMC.1 PCI Express	Gen 2-capable	18
		42	0x1	AMC.1 PCI Express	Gen 2-capable	19
		43	0x1	AMC.1 PCI Express	Gen 2-capable	8
		44	0x1	AMC.1 PCI Express	Gen 2-capable	21
		45	0x1	AMC.1 PCI Express	Gen 2-capable	22
		46	0x1	AMC.1 PCI Express	Gen 2-capable	23
		47	0x1	AMC.1 PCI Express	Gen 2-capable	24
		48	0x1	AMC.1 PCI Express	Gen 2-capable	13
		49	0x1	AMC.1 PCI Express	Gen 2-capable	14
		50	0x1	AMC.1 PCI Express	Gen 2-capable	15
		51	0x1	AMC.1 PCI Express	Gen 2-capable	16
		52	0x1	AMC.1 PCI Express	Gen 2-capable	17
		53	0x1	AMC.1 PCI Express	Gen 2-capable	18
		54	0x1	AMC.1 PCI Express	Gen 2-capable	19
		55	0x1	AMC.1 PCI Express	Gen 2-capable	8

Figure 51: Enabled Ports

This command is used to obtain Enabled Ports.

3.11.5 LAN

These Commands are similar to Shelf Manager. Please Refer to Section 3.9.4

3.11.6 Administration

These Commands are similar to Shelf Manager. Please Refer to Section 3.9.5

3.11.7 Power

Figure 52: Carrier Power Distribution Commands

3.11.7.1 Get Power Distribution

This command is used to obtain the Carrier Power Distribution.

MicroTCA Carrier Activation and Power Management Records describe the Maximum Channel Current that the backplane is capable of delivering to a module.

The Carrier Manager will obtain the Module's current requirement from its FRU Information and then validate it against the Maximum Channel Current data defined in the MicroTCA Carrier FRU Activation and Power Management Record. The current delivered to a Module cannot exceed the Maximum Channel Current.

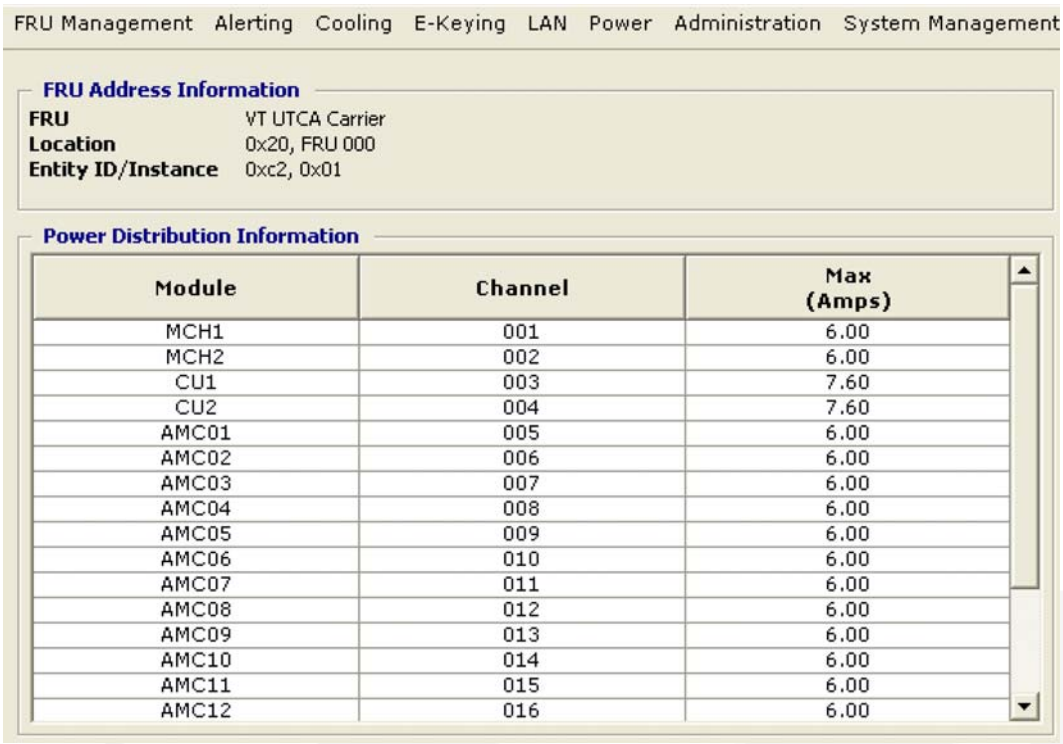


Figure 53: Carrier Power Distribution

3.11.7.2 Get Power Policy

Figure 54: Carrier Power Policy

This command is used to obtain the Carrier Power Policy Record.

The MicroTCA Carrier Power Policy record specifies the Maximum Current Override and recommends Primary/Redundant roles and preferences for Power Channel allocation to each PM. The Maximum Current Override field optionally limits the maximum available Payload Power from the PM due to external constraints such as cabling, external power limitations, and power supply efficiency. Regardless of the power capability reported by the PM, the power drawn from the PM cannot exceed this value.

The optional Power Channel Array specifies the preferred Power Channels to which a PM provides Payload Power.

3.11.8 System Management

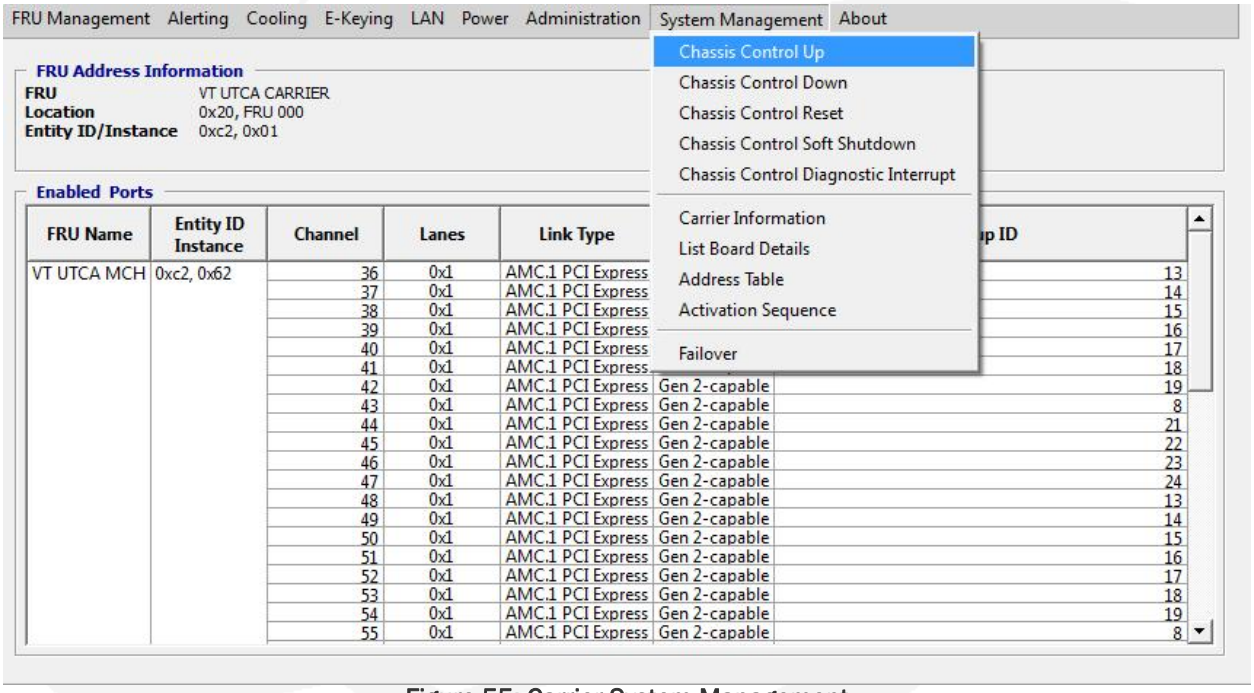


Figure 55: Carrier System Management

3.11.8.1 Chassis Control

Command	Description
Up	Activate all FRUs in the Chassis
Down	Deactivate all FRUs in the Chassis
Reset	Send Cold Reset to all FRUs in the Chassis
Soft Shutdown	Deactivate all FRUs sin the Chassis
Diagnostic Interrupt	Pulse diagnostic interrupt to all FRUs in the Chassis

Table 10: Carrier Chassis Controls

3.11.8.2 Carrier Information

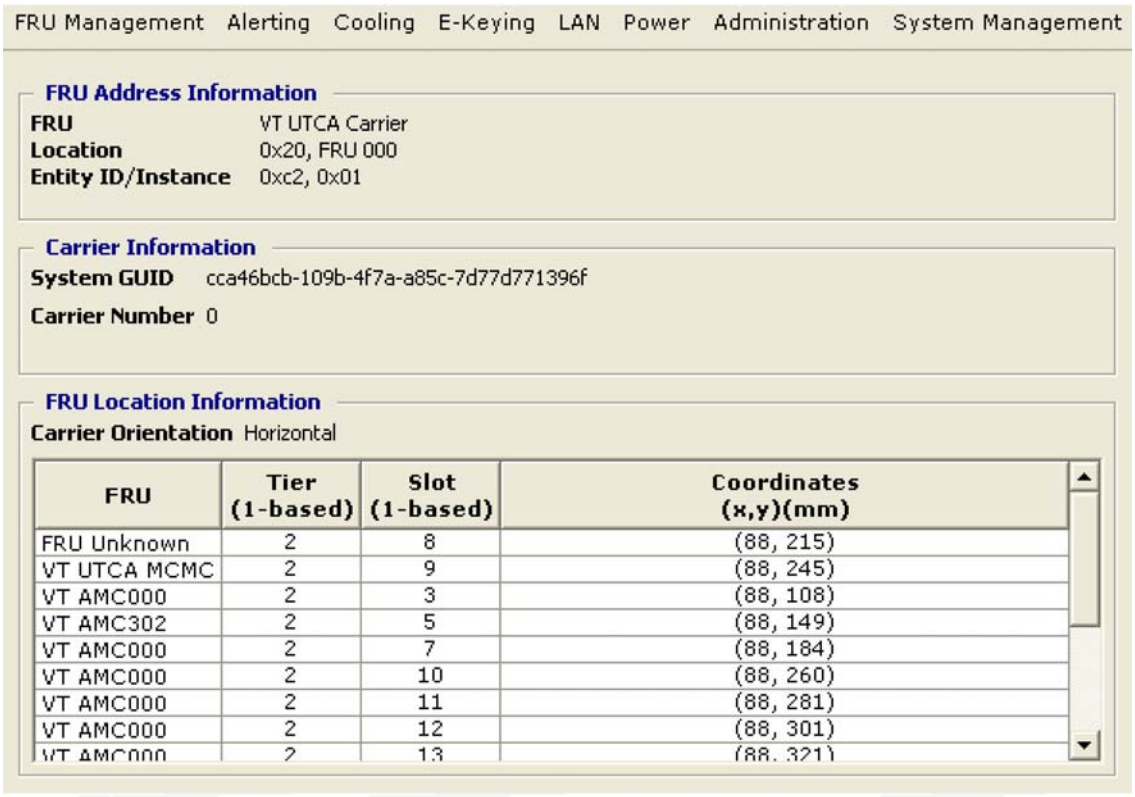
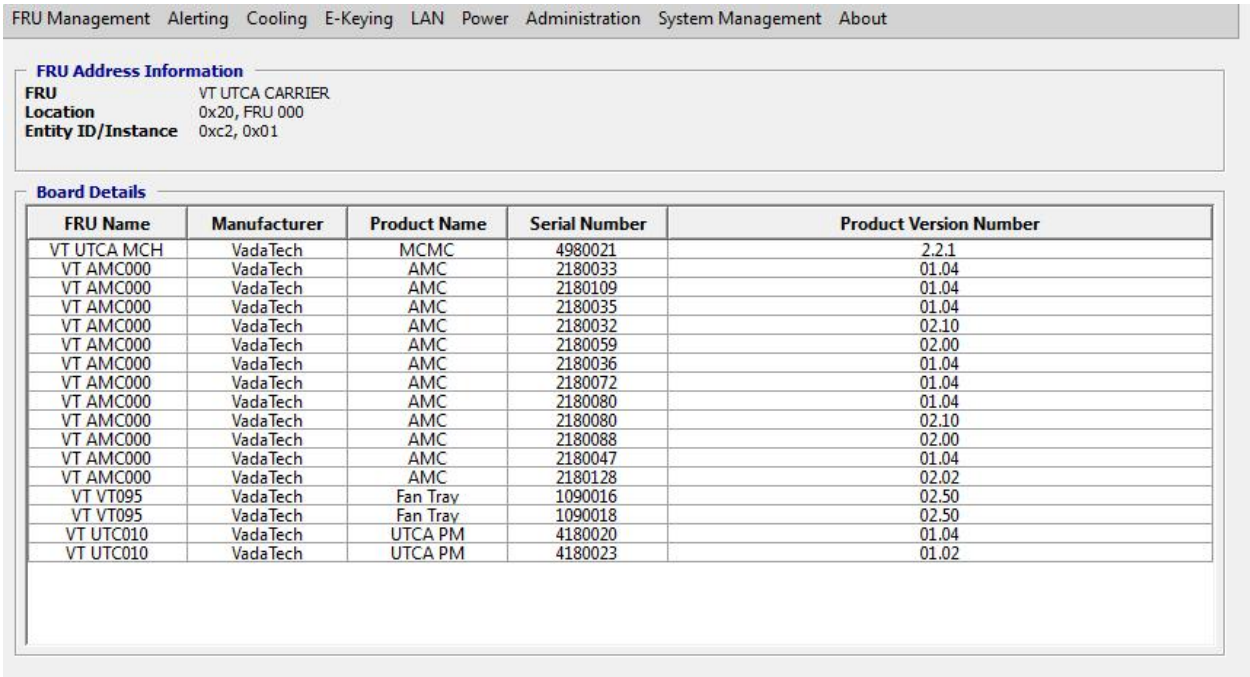


Figure 56: Carrier Information

The physical location of Modules within a MicroTCA Carrier is determined by the layout of the MicroTCA Carrier Backplane. The MicroTCA Carrier Information record as described in the Carrier FRU Information contains mapping information used to describe the physical location of Modules in the Carrier.

Each MicroTCA Carrier is identified by its MicroTCA Carrier Number from 1 through 16 within a MicroTCA Shelf. Typically, the Carrier Number is assigned based on the Carrier's physical location in the MicroTCA Shelf.

3.11.8.3 List Board Details



FRU Name	Manufacturer	Product Name	Serial Number	Product Version Number
VT UTCA MCH	VadaTech	MCMC	4980021	2.2.1
VT AMC000	VadaTech	AMC	2180033	01.04
VT AMC000	VadaTech	AMC	2180109	01.04
VT AMC000	VadaTech	AMC	2180035	01.04
VT AMC000	VadaTech	AMC	2180032	02.10
VT AMC000	VadaTech	AMC	2180059	02.00
VT AMC000	VadaTech	AMC	2180036	01.04
VT AMC000	VadaTech	AMC	2180072	01.04
VT AMC000	VadaTech	AMC	2180080	01.04
VT AMC000	VadaTech	AMC	2180080	02.10
VT AMC000	VadaTech	AMC	2180088	02.00
VT AMC000	VadaTech	AMC	2180047	01.04
VT AMC000	VadaTech	AMC	2180128	02.02
VT VT095	VadaTech	Fan Tray	1090016	02.50
VT VT095	VadaTech	Fan Tray	1090018	02.50
VT UTC010	VadaTech	UTCA PM	4180020	01.04
VT UTC010	VadaTech	UTCA PM	4180023	01.02

Figure 57: Carrier Board Details

This command is used to obtain information about the devices installed in the Carrier.

3.11.8.4 Address Table

This command is used to obtain the Carrier address table.

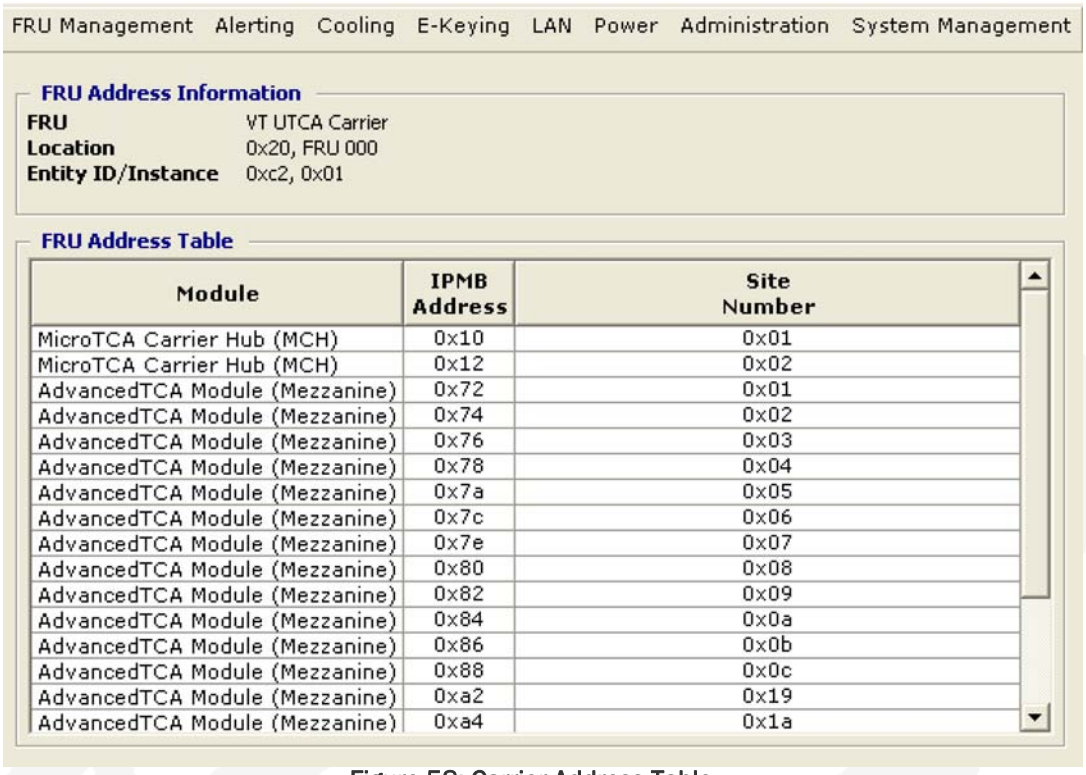


Figure 58: Carrier Address Table

3.11.8.5 Activation Sequence

The MicroTCA Carrier Activation and Power Management Record describe the Module activation sequence, as well as the Maximum Channel Current that the Backplane is capable of delivering to the Module.

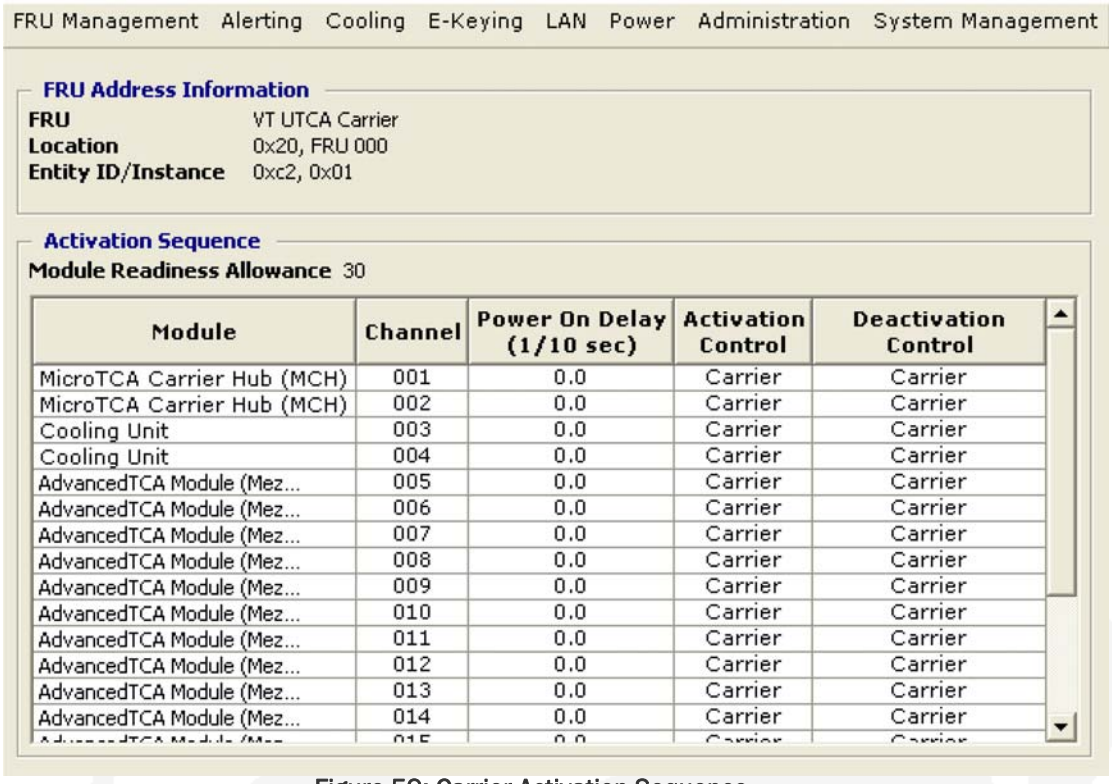


Figure 59: Carrier Activation Sequence

3.11.8.6 Failover

This command enables the user to issue a Carrier redundancy failover to the standby MCH if one is present. If a redundant MCH is healthy and active the Carrier Manager will failover immediately.

3.12 MCMC, EMMC and MMC

3.12.1 FRU Management

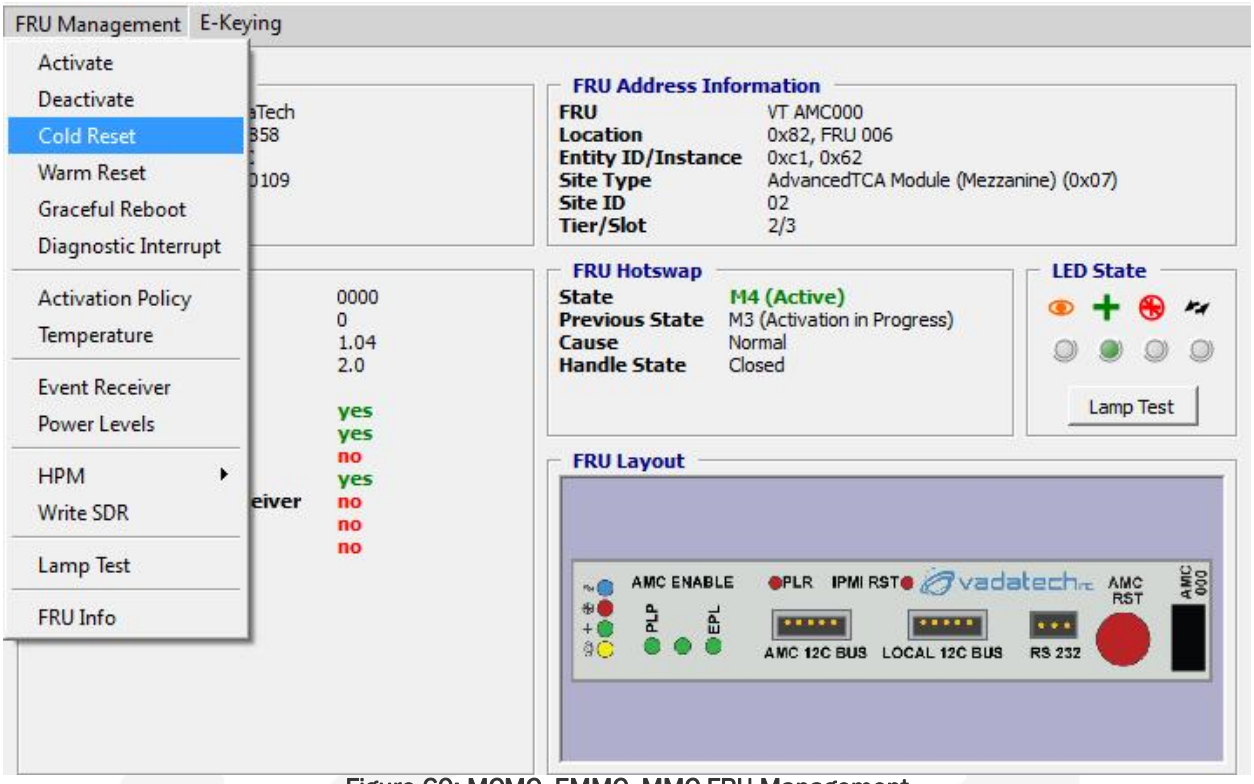


Figure 60: MCMC, EMMC, MMC FRU Management

3.12.1.1 FRU Info

This command is used to obtain the FRU:

- Product information
- FRU Information as described by the Get Device ID Command
- Address information
- Hot swap state of FRU
- LED state

3.12.1.2 Activate

This command is used to activate the specified FRU to M4 state.

3.12.1.3 Deactivate

This command is used to deactivate the specified FRU to M1 state.

3.12.1.4 Cold Reset

Applicable only for MCMCs, MMCs, Fan Trays and OEM EMMCs, this command is used to trigger a hardware reset of the specified FRU payload.

3.12.1.5 Warm Reset

Applicable only for MCMCs, MMCs, Fan Trays and OEM EMMCs, this command is used to trigger a reset of the specified FRU payload to a stable condition while attempting to preserve its operational state. The FRU may not support this command.

3.12.1.6 Graceful Reboot

Applicable only for MCMCs, MMCs, Fan Trays and OEM EMMCs, this command is used to trigger a graceful shutdown to the specified FRU and reboot of its payload operating system. The FRU may not support this command.

3.12.1.7 Diagnostic Interrupt

Applicable only for MCMCs, MMCs, Fan Trays and OEM EMMCs, this command is used to trigger a diagnostic interrupt to the specified FRU's payload. The FRU may not support this command.

3.12.1.8 Activation Policy

Applicable only for MCMCs, MMCs, Fan Trays, PM and OEM EMMCs, this command is used to get the current state of the specified FRU Activation Policy. The policy bits indicate whether the FRU is Locked or not and whether the FRU is Deactivation-Locked or not. Conceptually, the Locked bit is like a software equivalent of the Handle Switch. Similar to the situation with the hardware Handle Switch, the FRU cannot proceed from state M1 to M2 if the Locked bit has the value 1b. The Deactivation-Locked bit indicates whether the Extraction Criteria Met condition exists. The FRU can only proceed from M4 to M5 if the Deactivation-Locked bit is cleared.

3.12.1.9 Temperature

Applicable only for MCMC, MMCs, Fan Trays, PM and OEM EMMCs, this command is used to get the current temperature reading and threshold status of the specified FRU.

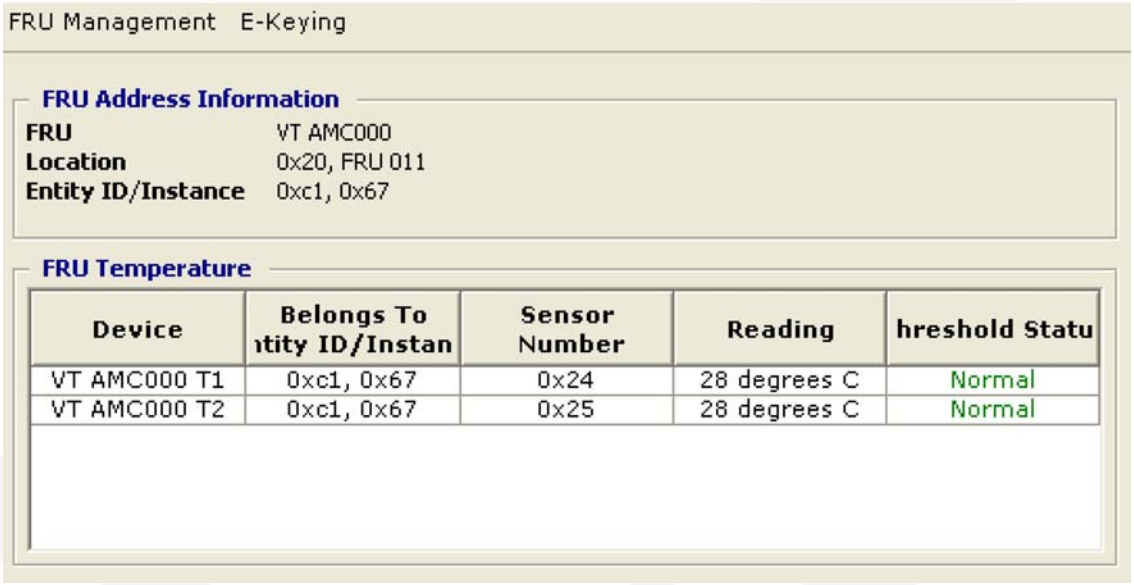


Figure 61: FRU Temperature Status

3.12.1.10 Event Receiver

This command is used to get the Event Receiver address and LUN setting for the specified FRU. The command can also be used to set the Receiver address and LUN.

3.12.1.11 Power Levels

This command is used to get the current operating power level for the specified FRU. The user can change the power level of the FRU by selecting one of the available power levels supported by the FRU.

3.12.1.12 HPM

Hardware platform Management upgrade utility.

3.12.1.12.1 Get Versions

This command is used to obtain FRU's firmware information.

3.12.1.12.2 Upgrade

This command is used to upgrade FRU's firmware

3.12.1.13 Write SDR

This command is used to write SDR information from file to the selected FRU.

3.12.1.14 Lamp Test

This command is used to test the LEDs on the selected FRU.

3.12.1.15 FRU Info

This command is used to obtain information about the selected FRU.

3.12.2 E-Keying

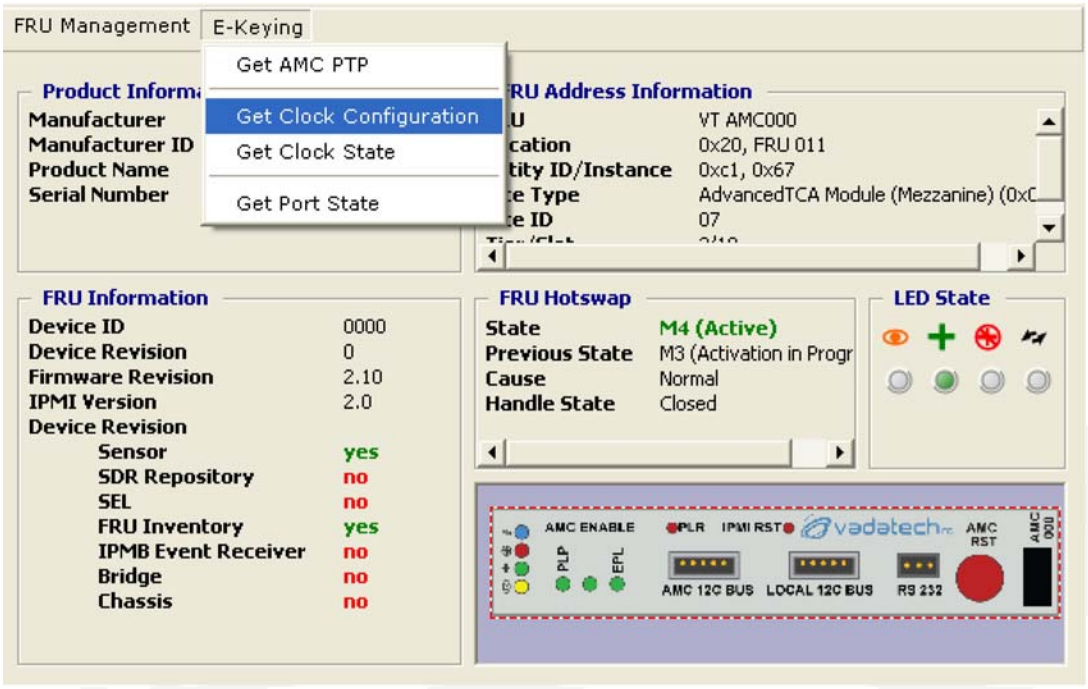


Figure 62: Carrier E-Keying Commands

3.12.2.1 Get AMC PTP

Applicable only for MCMCs, MMCs and OEM EMMCs, this command is used to obtain the AMC Point-to-Point Information of the specified FRU.

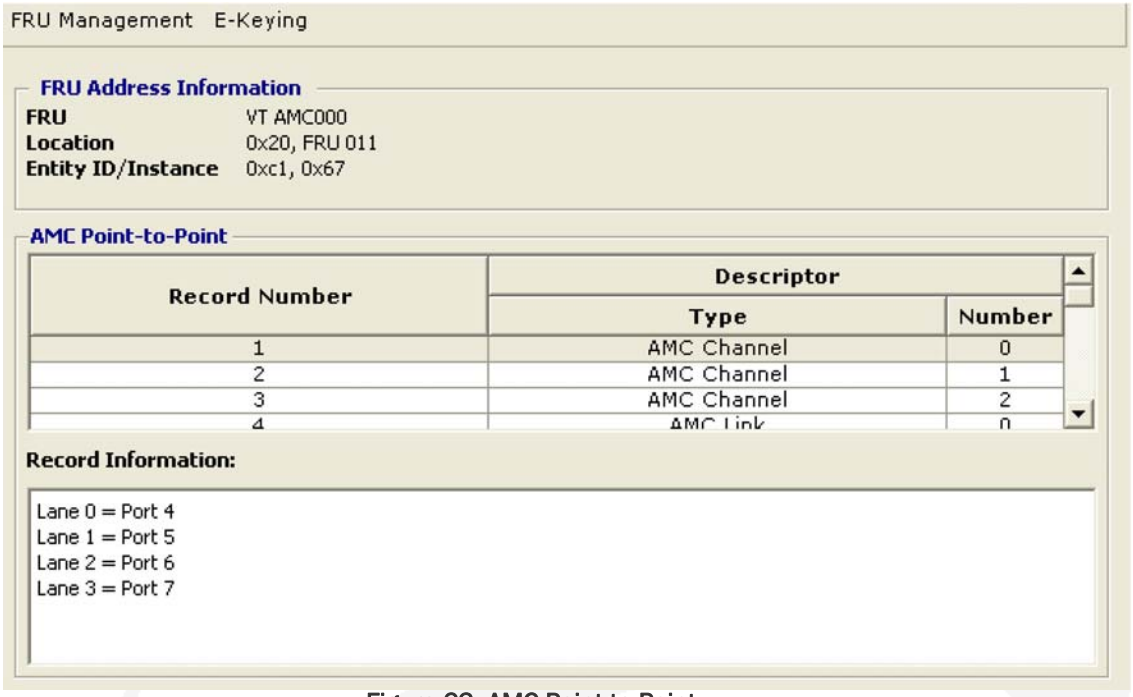


Figure 63: AMC Point-to-Point

One or more AMC Point-to-Point Connectivity records are included in the AMC FRU Information and describe the Channel and Link connectivity that is implemented on the AMC Module. Each AMC point-to-point connectivity record contains AMC Link Descriptors, each of which identifies a Link and an associated protocol. Multiple AMC Link Descriptors can exist for a given point-to-point AMC Channel. This would be used when a Channel can support multiple protocols such as PCI-Express and Advanced Switching.

AMC Channel Descriptors define AMC Channels (each composed of an essentially arbitrary set of up to four Ports) that are implemented on a Module or an on-Carrier device (depending on the value of the Record Type field in the AMC Point-to-Point Connectivity record). An AMC Channel is referenced in other FRU Information records via an AMC Channel ID/Number, which is the zero-based sequential index into the corresponding AMC Channel Descriptor in a composite list combining the AMC Channel Descriptors from all the AMC Point-to-Point Connectivity records that occur in a given FRU Information area. This list preserves the order of the groups of AMC Channel Descriptors to match the order of the containing AMC Point-to-Point Connectivity records in the FRU Information area. For more information on AMC Channel and Link Descriptors please refer to PICMG Advanced Mezzanine Card AMC.0 Specification.

3.12.2.2 Get Clock Configuration

Applicable only for MCMCs, MMCs and OEM EMMCs, this command is used to obtain the Clock configuration of the specified FRU.

Figure 64: Clock Configuration

3.12.2.3 Get Clock State

Applicable only for MCMCs, MMCs and OEM EMMCs, this command is used to obtain the Clock state of the specified FRU.

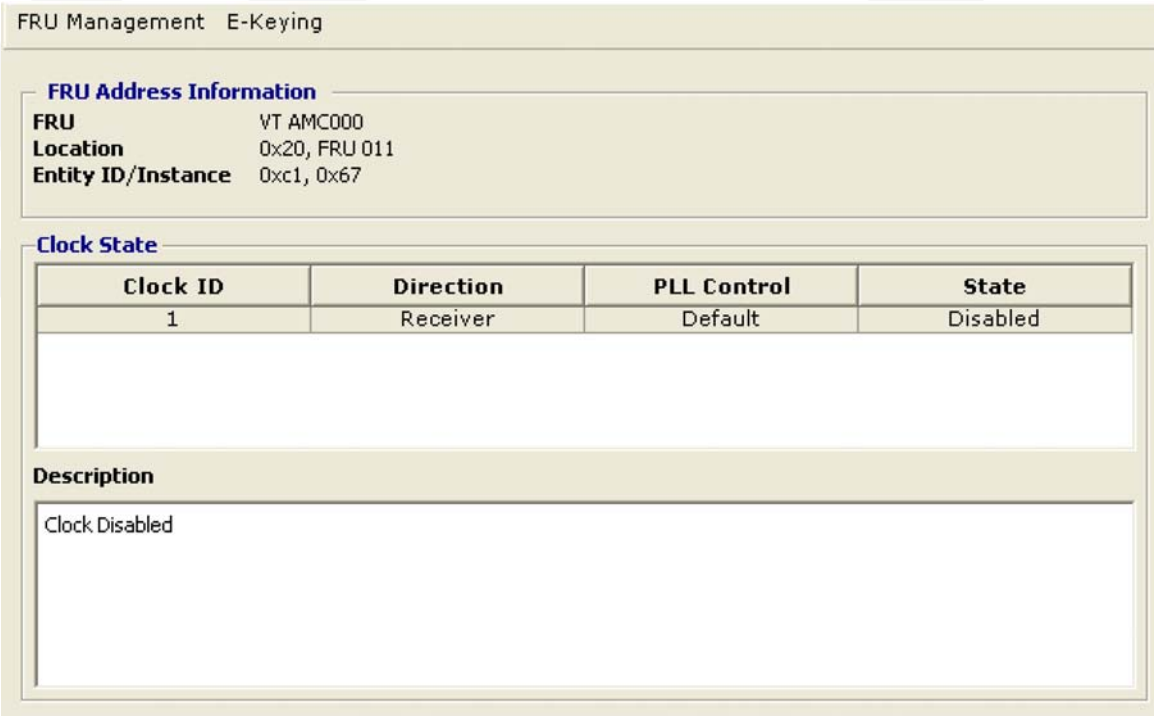
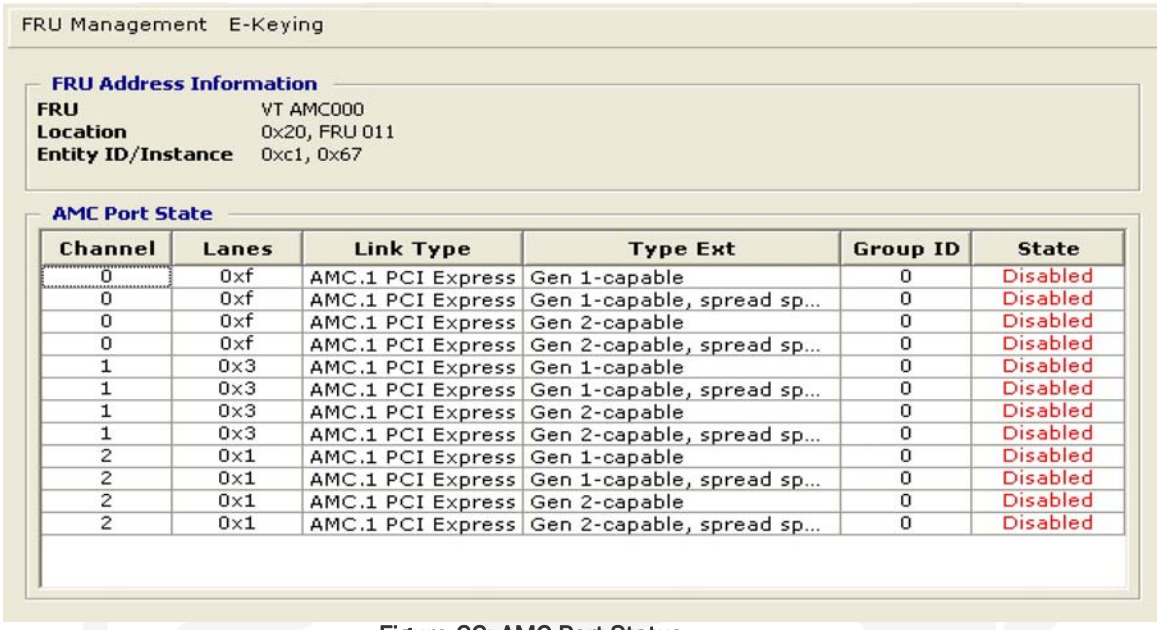


Figure 65: Clock State

3.12.2.4 Get Port State

Applicable only for MCMCs, MMCs and OEM EMMCs, this command is used to obtain distinct *Link Info* and *State* for up to four ports.



Channel	Lanes	Link Type	Type Ext	Group ID	State
0	0xf	AMC.1 PCI Express	Gen 1-capable	0	Disabled
0	0xf	AMC.1 PCI Express	Gen 1-capable, spread sp...	0	Disabled
0	0xf	AMC.1 PCI Express	Gen 2-capable	0	Disabled
0	0xf	AMC.1 PCI Express	Gen 2-capable, spread sp...	0	Disabled
1	0x3	AMC.1 PCI Express	Gen 1-capable	0	Disabled
1	0x3	AMC.1 PCI Express	Gen 1-capable, spread sp...	0	Disabled
1	0x3	AMC.1 PCI Express	Gen 2-capable	0	Disabled
1	0x3	AMC.1 PCI Express	Gen 2-capable, spread sp...	0	Disabled
2	0x1	AMC.1 PCI Express	Gen 1-capable	0	Disabled
2	0x1	AMC.1 PCI Express	Gen 1-capable, spread sp...	0	Disabled
2	0x1	AMC.1 PCI Express	Gen 2-capable	0	Disabled
2	0x1	AMC.1 PCI Express	Gen 2-capable, spread sp...	0	Disabled

Figure 66: AMC Port Status

3.12.3 Cooling

3.12.3.1 Get Fan Level

Applicable only for Fan Tray, this command is used to obtain and modify the Fan Level.

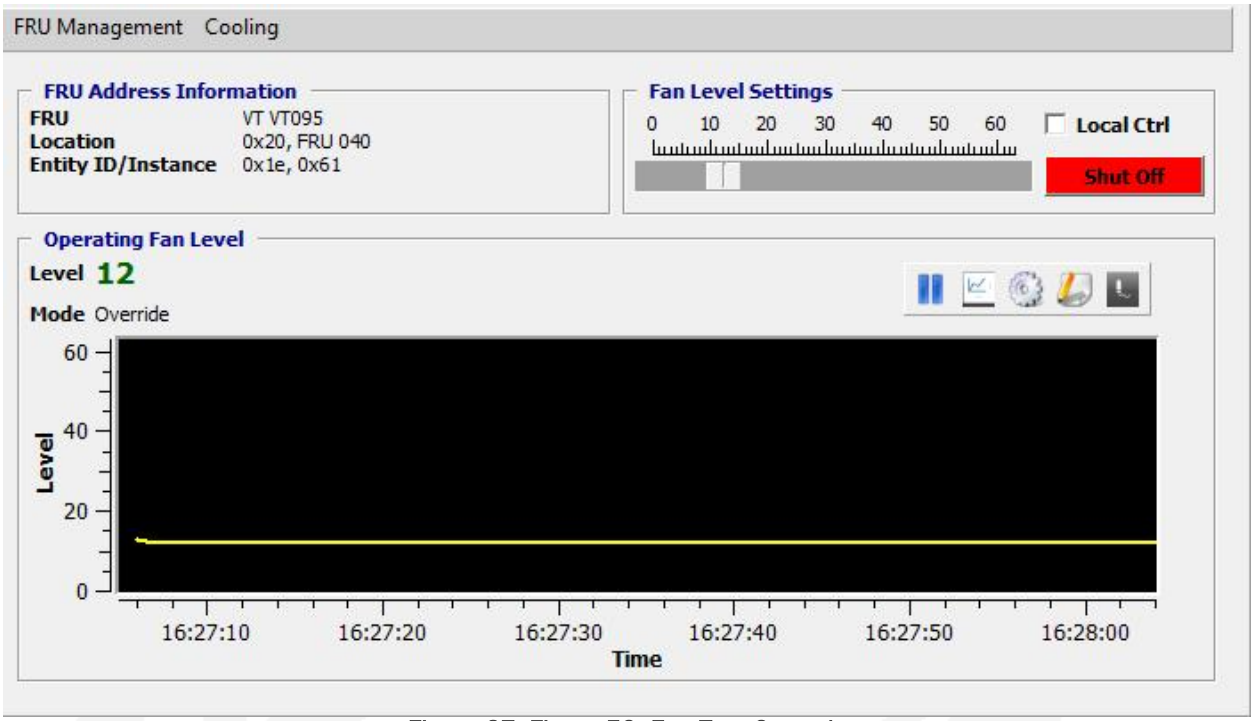


Figure 67: Figure 59: Fan Tray Controls

Display:

- Real time graph plotter that updates the graph with the Fan Level.
- The current Fan Level and the Operating Mode.

Controls:

- Fan Level setting Local Control checkbox and emergency shutoff button.

ICON	Function	Description
	Pause/Resume	Pause and Resume data collection
	Scale	Configure the graph scale
	Refresh Rate	Configure the date refresh rate
	Log Setting	Enable data logging to a file
	Erase	Clear history

Table 11: Fan Tray Controls

3.12.4 Power

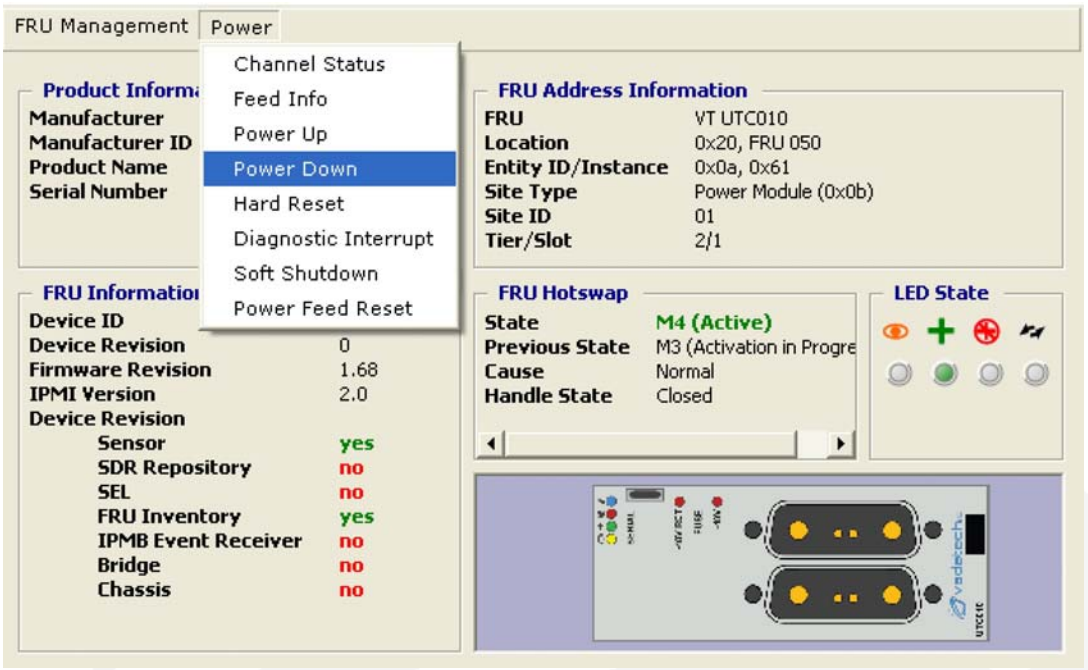


Figure 68: Power Module Commands

The following commands in this section are applicable only for Power Modules.

3.12.4.1 Channel Status

This command is used to obtain the following information from the Power Module:

- Current role of the Power Module i.e. Primary or Redundant.
- Management Power status
- Payload Power status
- Maximum Power Channels supported by the Power Module.
- Per Module slot Information:
  - Channel number
  - Presence status
  - Reset Enable status
  - Management Power On/Off state with current status
  - Payload Power On/Off state with current status
  - PWR_ON state

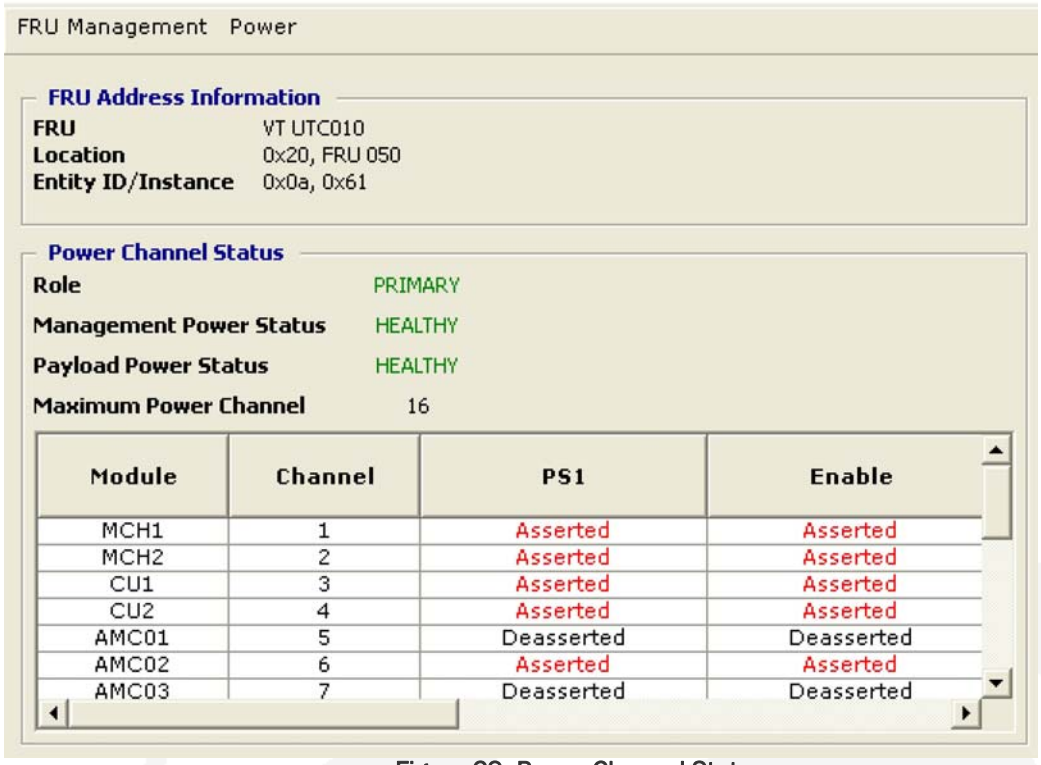


Figure 69: Power Channel Status

3.12.4.2 Power Up

This command is used to enable power for all supported modules. This is an optional command for Power Modules and may not be implemented.

3.12.4.3 Power Down

This command is used to disable power for all supported modules. This is an optional command for Power Modules and may not be implemented.

3.12.4.4 Hard Reset

This command is used to trigger a reset event in the system that initializes all components and invalidates caches. This is an optional command for Power Modules and may not be implemented.

3.12.4.5 Diagnostic Interrupt

This command is typically used to cause the operating system to do a diagnostic dump. This is an optional command for Power Modules and may not be implemented.

3.12.4.6 Soft Shutdown

This command is used initiate a soft shutdown. This is an optional command for Power Modules and may not be implemented.

3.12.4.7 Power Feed Reset

This command is used to reset the alternate PM(s) in the Chassis. This command must be sent to a secondary PM, which will drive a reset signal to the specified PM if present.

3.13 Telco

3.13.1 Capabilities

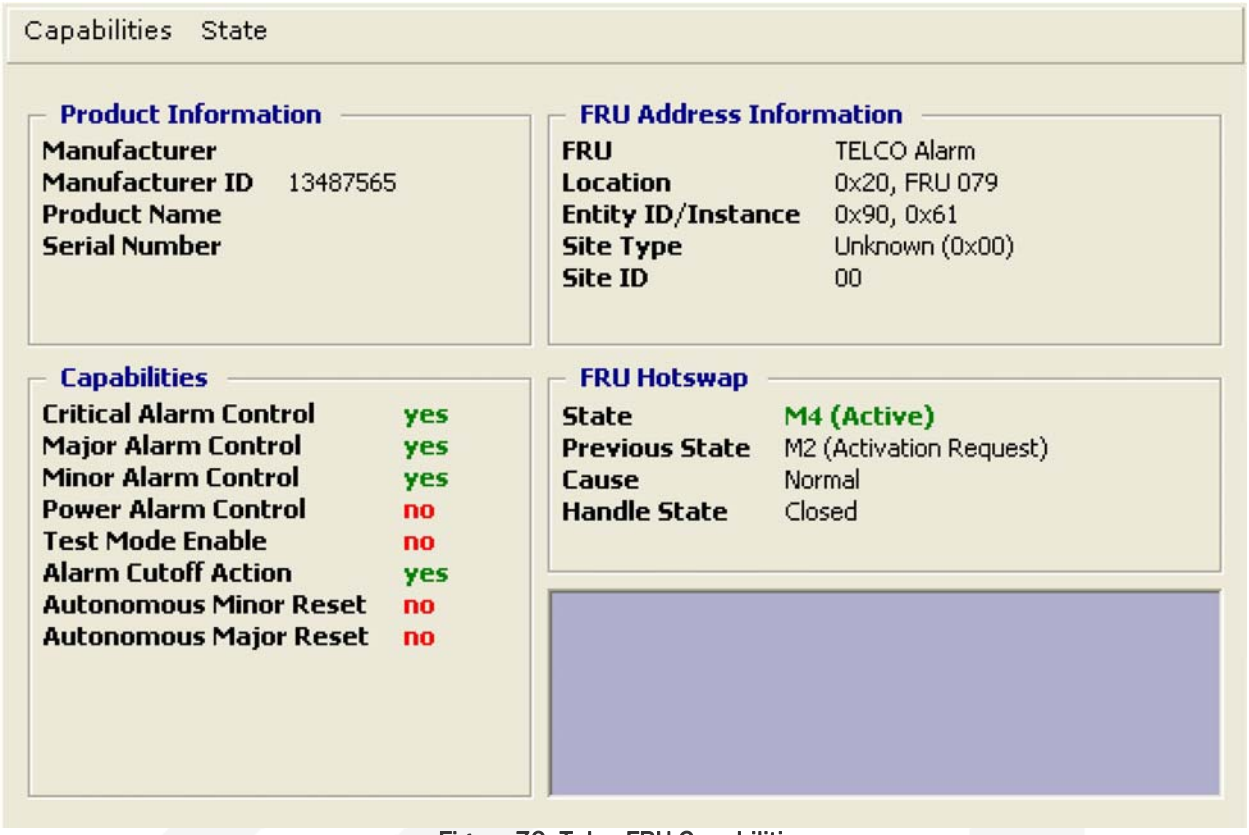


Figure 70: Telco FRU Capabilities

- Indicates which alarms can be controlled by "Set Telco Alarm State" command.
- Hot swap status

3.13.2 State

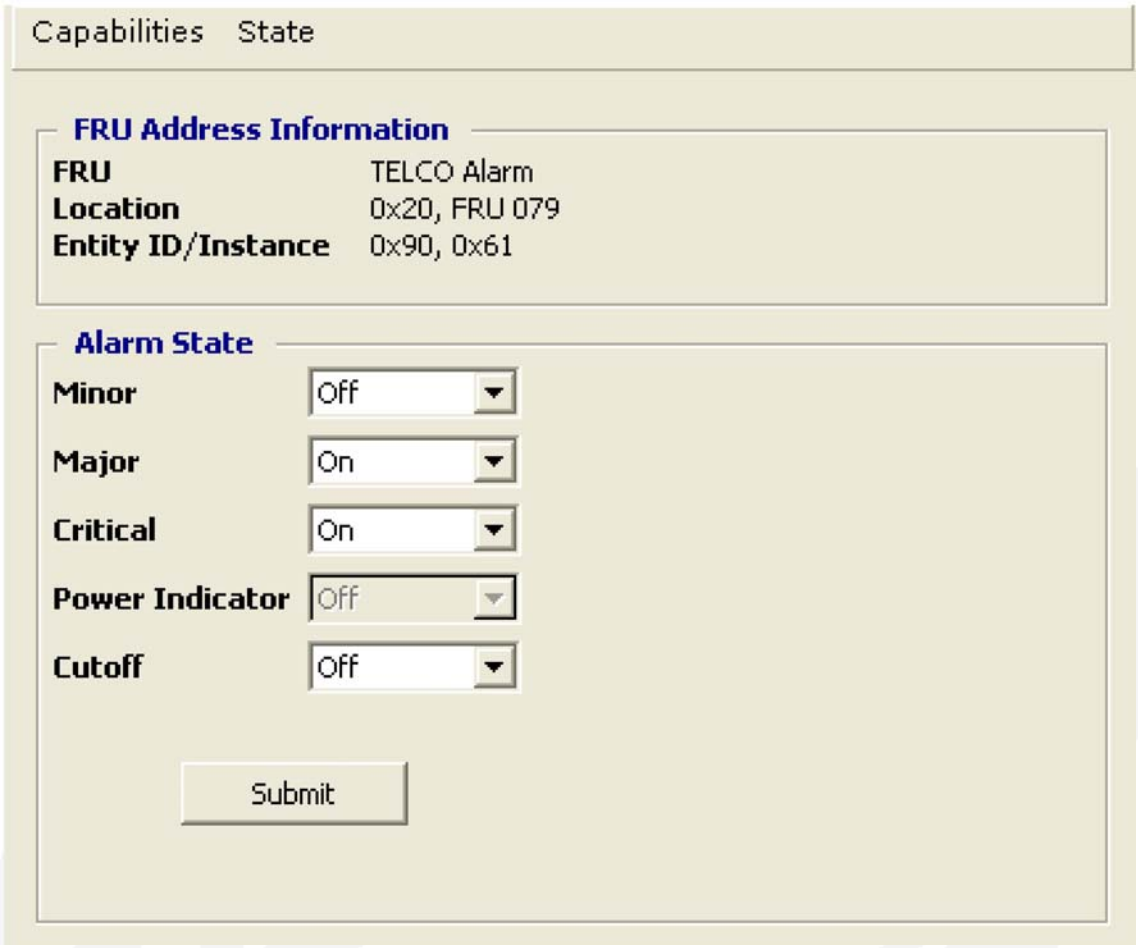


Figure 71: Telco Status

Controls:

- The current status of the Telco Alarm
- Enable/Disable Minor, Major, Critical, Power Indicator alarms.
- Enable/Disable Telco Cutoff.

3.14 Sensors

3.14.1 Sensor Classes

Sensors fall into the following classes:

Class	Description
Discrete	Multiple states possible. Discrete sensors can contain up to 15 possible states. For discrete sensors, the Get Sensor Reading command returns a bit field where each bit reflects a different state. It is possible for a discrete sensor to have more than one state active at a time. Discrete sensors can be designed to provide either Generic or Sensor-specific states. The Event/Reading Type Codes in IPMI 2.0 Interface Specification are used to specify the particular set of possible Generic states for a discrete sensor
Digital	A digital sensor is not really a unique class, but a term commonly used to refer to special case of a discrete sensor that only has two possible states.
Threshold	'Threshold based'. Changes event status by comparing the reading to fixed threshold values. Threshold enumerations may be considered a special case of the discrete sensor type. The Event/Reading Type Code for threshold-based sensors is specified in, Generic Event/Reading Type Codes in IPMI 2.0 Interface Specification. The offsets specify each particular possible threshold state.
OEM	Special case of discrete where the meanings of the states (offsets) are OEM defined.

Table 12: Sensor Classification

3.14.2 Threshold Sensors

The Temperature, Voltage and RPM sensors are some of the important threshold sensors. The System Management tool presents these sensors in a real time plotter that updates the graph with the sensor reading.

Real Time Plotting:

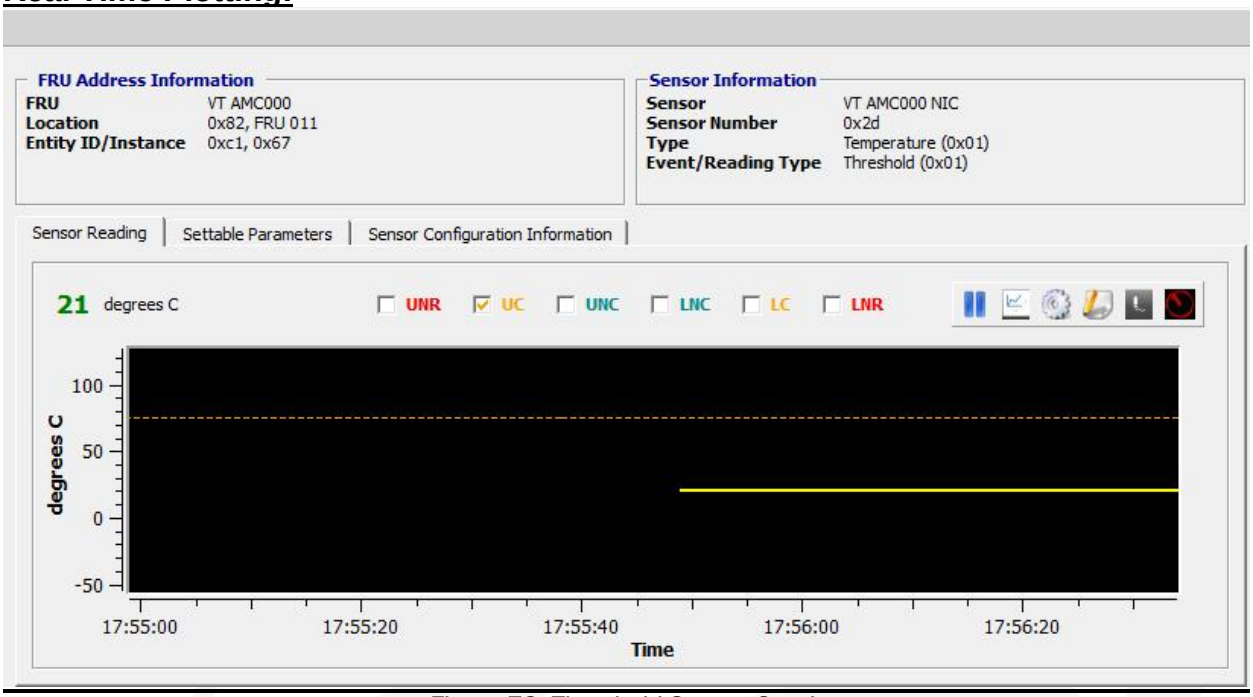


Figure 72: Threshold Sensor Graph

Analog Display:

Figure 73: Threshold Sensor Analog Reading

Controls:

ICON	Function	Description
	Pause/Resume	Pause and Resume data collection
	Scale	Configure the graph scale
	Refresh Rate	Configure the date refresh rate
	Log Setting	Enable data logging to a file
	Erase	Clear history
	Switch View	Switch between Graph and Analog view

3.14.2.1 Settable/Readable Parameters

Sensor Settable Parameters enable the user to change the Threshold and Hysteresis for the sensor. Enable/Disable Event Messages and Sensor Scanning Sensor Configuration Information as programmed in the Sensor Data Record (SDR).

3.15 LEDs

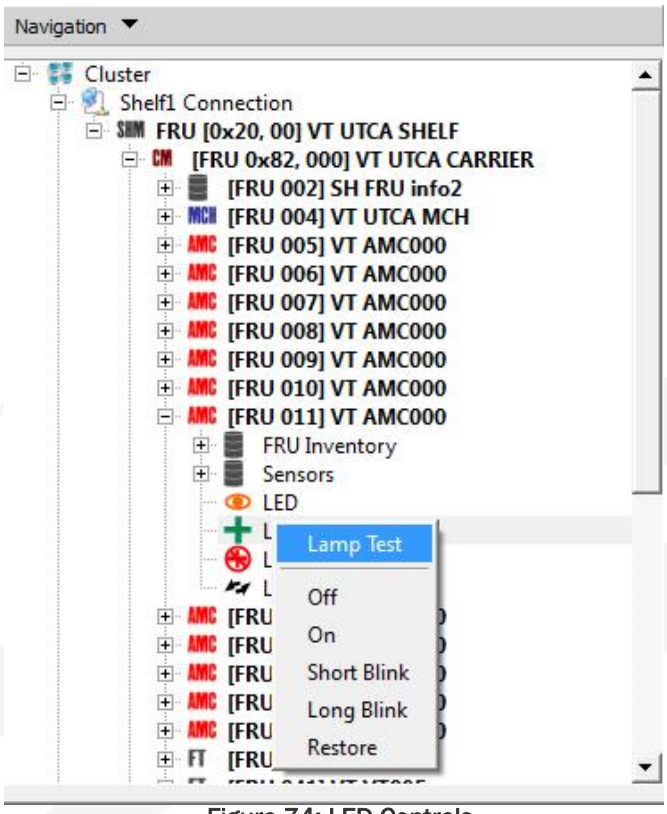


Figure 74: LED Controls

There are four standard ATCA LED indicators. These are named LED-0, LED-1, LED-2 and LED-3. The first three LEDs indicate the FRU's hot swap, fault, and ready/OK states, respectively. The fourth LED is application-specific. The status of each of these LEDs can be obtained by selecting the respective LED in the FRU.

Controls:

Control	Description
Lamp Test	Lamp Test for a specified duration
Off	LED off
On	LED on
Short Blink	LED short blink
Long Blink	LED long blink
Restore	Restore LED to local control

Note that On, Off, Short Blink and Long Blink override the local control state of the LED, and Lamp Test overrides all other controls.

3.16 Carrier FRU Information

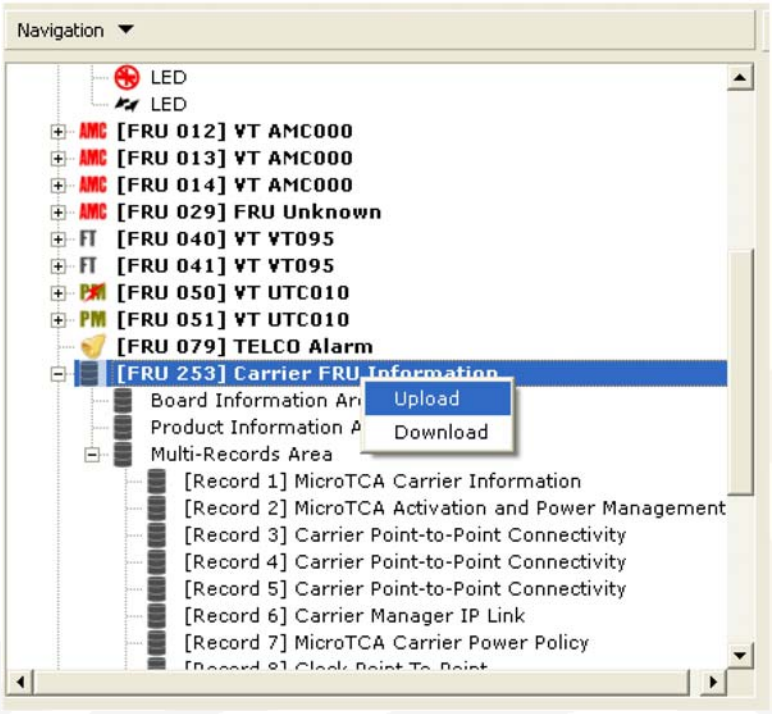


Figure 75: Carrier FRU Information

This is the logical device managed by the Carrier Manager that contains the Carrier FRU Information.

The contents the Carrier Information FRU can be viewed by navigating further into the Board, Product, Chassis and Multi-Record sections of the FRU Inventory.

3.16.1.1 Upload

This command is used to upload Carrier FRU information to the Carrier backplane EEPROM.

3.16.1.2 Download

This command is used to download Carrier FRU binary information from the Carrier backplane EEPROM.

3.17 Sensor Data Record Repository

Sensor Data Records are data records that contain information about the type and number of sensors in the platform, sensor threshold support, event generation capabilities and information on what types of readings the sensor provides. The primary purpose of Sensor Data Records is to describe the sensor configuration of the platform management subsystem to system software.

Sensor Data Records are kept in a single, centralized non-volatile storage area that is managed by the Base Management Controller. This storage is called the Sensor Data Record Repository.

3.17.1 Get SDR Information

This command is used to return the SDR command version for the SDR Repository and the timestamp for when the last ADD, DELETE, or CLEAR occurred.

3.17.2 Get SDR

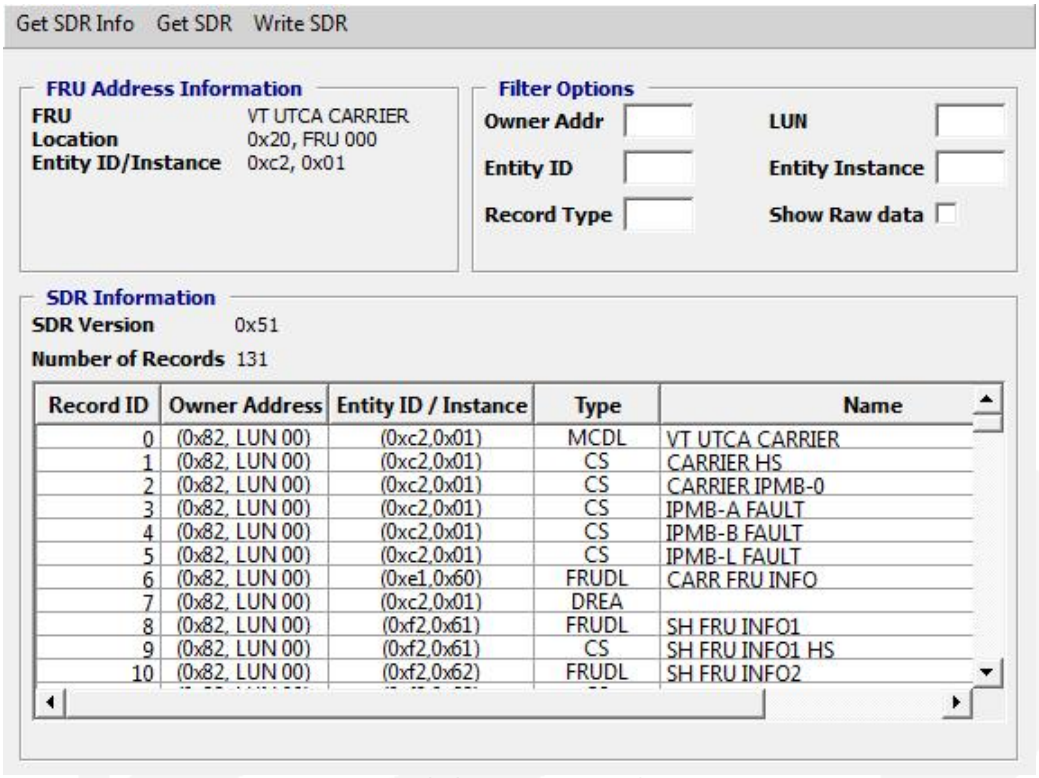


Figure 76: SDR Repository Contents

This command is used to retrieve all the Sensor Data Records contained in the Sensor Data Record Repository.

Options:

Filter options allow the user to search records by Owner Address, LUN, Entity ID, Entity Instance, Record Type and any combination of these parameters.

The Show raw data option will allow the user to view the SDR information in hex format.

3.17.2.1 Write SDR

This command writes the SDR information from file to target device.

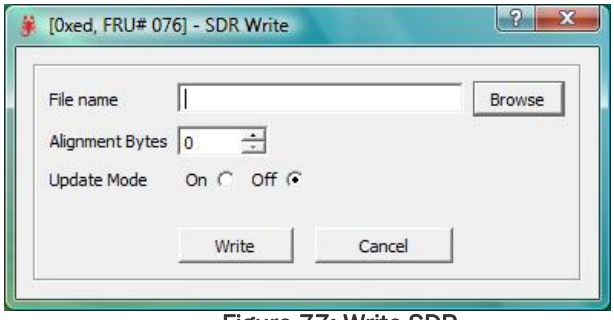


Figure 77: Write SDR

3.18 System Event Log

The Shelf Manager provides a centralized, non-volatile System Event Log, or SEL. The SEL Device is the logical management device that provides the interface to the System Event Log for the system. The SEL Device provides a set of commands for managing the System Event Log. The SEL and logging helps ensure that 'post-mortem' logging information is available should a failure occur that disables the systems processor(s).

3.18.1 Get SEL Information

This command returns the SEL command version for the System Event Log. It also returns a timestamp for when the last ADD, DELETE, or CLEAR occurred.

3.18.2 Get SEL

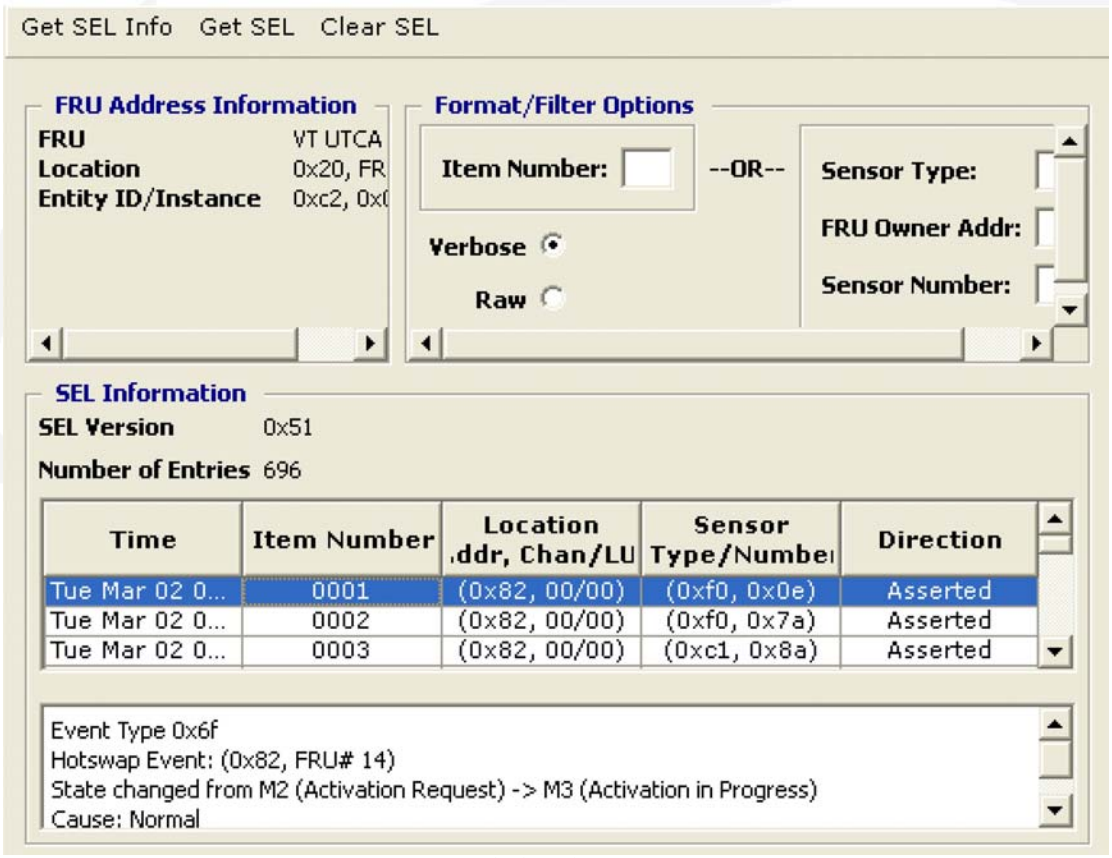


Figure 78: SEL Contents

This command is used to retrieve entries from the System Event Log.

Options:

- Filter options allow the user to search entries by Item Number or by Sensor Type, FRU Owner Address, Sensor Number and a combination of all these parameters.
- Show raw option will allow the user to view the SEL information in hex format.
- Show Verbose option will allow the user to view the SEL decoded and presented in a readable format.

3.18.3 Clear SEL

This command clears all the entries in the System Event Log.

3.19 Alarm Panel

The System Manager periodically monitors the Shelf and the Carriers for alarms due to temperature, voltage or other faults.

The System Manager Alarm panel is used to view the active alarms in the Shelf or a Carrier connected to the Shelf. The user can also obtain the history of all alarms that occurred from system startup.

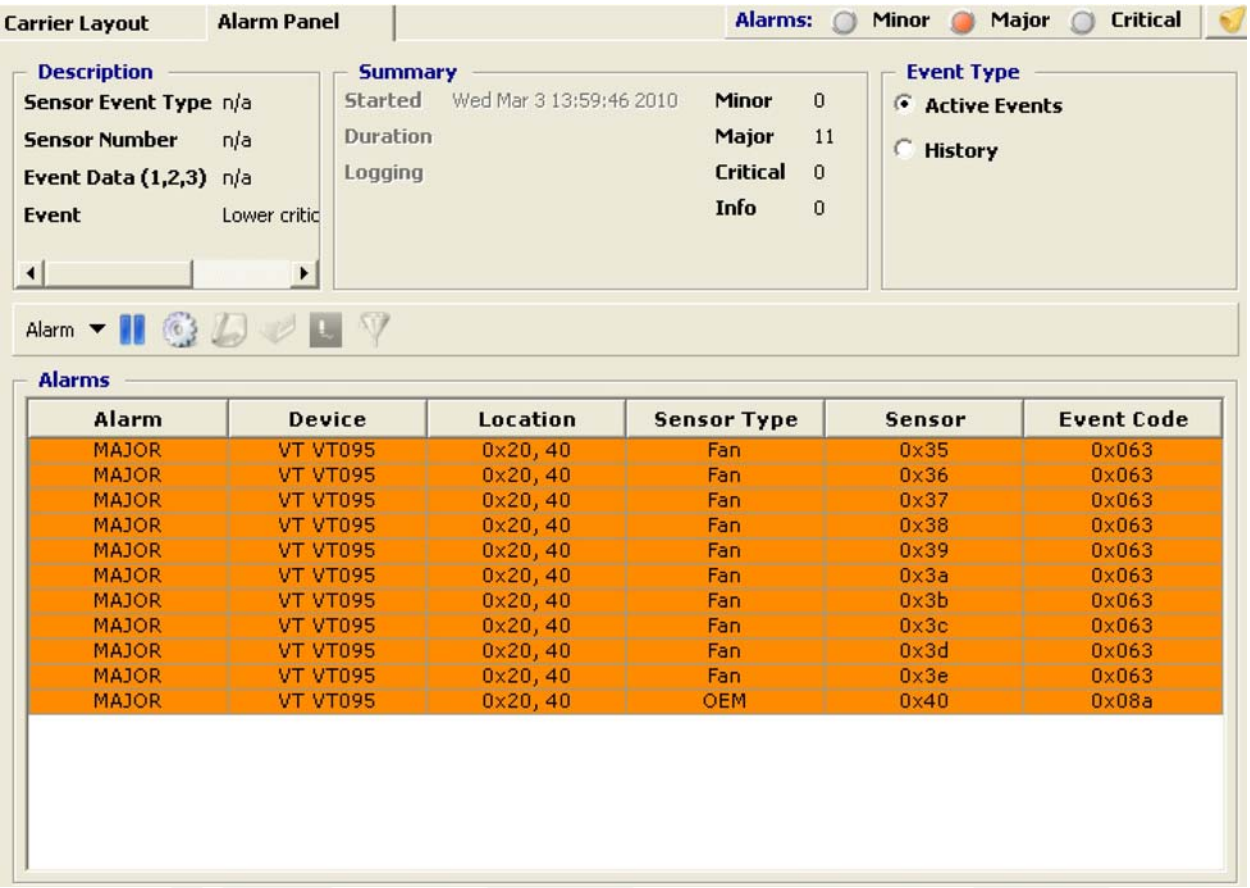


Figure 79: Alarm Panel

- Description of an alarm can be obtained by selecting the alarm entry in the table.
- The summary provides the following information:
  - Logger start time.
  - The duration of logging.
  - Enable/Disable status for logging.
  - The number of Minor, Major, Critical alarms.
- View active alarms or the history of all alarms that occurred since system startup.

Alarm Classification

Class	Description
INFO	An event occurred in the Shelf which may not be an error and classified as Information.
MINOR	An event occurred in the Shelf or Carrier which is classified as a minor alarm
MAJOR	An event occurred in the Shelf or Carrier which is classified as Major alarm.
CRITICAL	An event occurred in the Shelf or Carrier which is classified as Critical alarm.

Controls:

ICON	Description
	Pause/Resume alarm monitoring
	Set alarm panel data refresh interval
	Enable/Disable alarm logging to a file
	Clear history
	Alarm filter options

Logging:

Logging option allows the user to log all alarms that occur in the system to a file. The logging option is available only when the event type is set to 'history'.

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